The Veterinary Record.

FOUNDED BY WILLIAM HUNTING, F.R.C.V.S., 1888.

NO. 19. MAY 9, 1931. VOL. 18.

The Assumption of the Male Plumage by the Hen Pheasant.

By F. A. E. Crew.

DEPARTMENT OF ANIMAL GENETICS, UNIVERSITY OF EDINBURGH.

As in the case of the domestic fowl, so also in that of the pheasant, not uncommonly an adult hen, following the moult, more or less completely assumes the plumage typical of the male, and *post-mortem* examination reveals a degenerate ovary on the left side of the body. But there are many more fowls than pheasants in this country, and, moreover, the fowl is completely domesticated. For these reasons, this phenomenon of apparent sex reversal has been recorded far more frequently in the case of the fowl, and experimentation having for its object an examination of the nature of this change-over has commonly employed the Brown Leghorn—a breed in which the plumage characters of male and female are remarkably different.

This experimentation has usually taken the form of surgical removal of the functional left ovary in the immature Brown Leghorn female chick. It is established that, following this operation, sooner or later the bird becomes male-like in respect of plumage, head-furnishings, spurs and sex behaviour, and that these progressive changes, which require about six months in order to become complete, are associated with the development on the right side of the body of a small sex-gland in which hypertrophy of the medullary elements is marked. In the normal hen this right sex gland is not discernible. It is to be revealed only by miscroscopic examination, but, after removal of the left functional ovary, either by disease or by the knife, it hypertrophies. If, when such a hen has assumed the male plumage, this right sex-gland is removed surgically, then the male sex characters disappear. If this is not done, however, it is found that the bird later re-assumes the female plumage, with the result that it has the appearance of a hen-feathered cock—the head furnishings being as those of a male, the plumage being as that of a female. It is established that if into a normal cock ovarian tissue from a related hen is grafted, this male will develop female feathering. It is concluded, therefore, from results of this and other experimentation, that the ovary elaborates a substance—a hormone—which imposes upon the plumage the necessity of developing the characters appropriate to the female; and that, similarly, the testis elaborates a hormone which also produces effects upon the plumage, head-furnishings, spurs and sex behaviour.

It is reasonable to assume that, in the hen whose ovary is removed by the knife or by degeneration, and in whose body the right sex-gland has become hypertrophied, this sex-gland must be equivalent, in respect of hormone production, first to a testis, and later to a testis *plus* an ovary. That this assumption is not unreasonable is shown by the recent work of Brode (1928) and of Gray (1930), who have demonstrated that there are significant similarities in the developmental history and structural composition of this right sex-gland on the one hand, and the typical testis and ovary on the other. After the left functional ovary is destroyed, there occurs in this rudimentary right gland an increase in the size of the cells of the medulla and an increase in their number, together with a transformation of the so-called " fat-laden " cells into what are known as medullary cells. Following this, there is a gradual transformation of the medullary cords into tubules which resemble the tubules of the mature testis of the male, save that they lack those elements which give rise to the functional sperm. Later on, there is a second activation of the germinal epithelium from which further tubules arise. The fully-grown right sex-gland, therefore, includes tubules of two distinct origins—those arising from medullary cords and those having their origin in the secondarily activated germinal epithelium. Such a developmental history, together with a consideration of the observed facts concerning sex-reversal permit one to postulate that the hypertrophied right sex-gland is a hermaphroditic gland in respect of the hormones that it elaborates, the male hormone being produced by the epithelial cells derived from the cords of the first proliferation, and the female hormone by the cords of the second proliferation, these being homologous to the follicular cells of the ovary. Exceptionally, actual germ cells are present. Sperm formation has been recorded in a few cases by Benoit (1923), Zawadowsky (1926) and by Domm (1929). It is assumed, with reason, that these arise in the cords of medullary origin. In other cases ovogenesis has been recorded—Domm (1927), Willier (1927), Brode (1928). It is assumed that in these cases the germ cells from which the eggs arose were present in the cords of secondary origin.

Thus, for the fowl, the story is fairly complete, thanks mainly to the brilliant work of a group of investigators that cluster around Professor F. R. Lillie in Chicago. Slowly, evidence is accumulating which shows that the facts referring to the fowl apply also to the pheasant. Zawadowsky and Zubina (1928) have described two hen pheasants (hybrids, silver x park) which assumed the characters of the capon, of which the male-like plumage is the most obvious. Naked-eye examination failed to disclose any sex-gland whatsoever, but microscopical search of the sites of the sex-glands revealed, on each side of the body, a tiny organ similar in its microscopical structure to the embryonic sex-gland of the developing male. A third hen pheasant which had begun to assume male-like plumage had on the left side of the body a sex-gland in which there was a distinct ovarian portion showing degeneration in the cortical region, a greatly reduced number of follicles and a swelling on the ground of an atretic follicle in the theca interna of which were well-developed cords and tubules embedded in nests of connective

DEPT. OF VET. MEDICINE

tissue. This area resembled in its structure the right sex-gland of the female of a domestic fowl following destruction of the functional left ovary.

A few weeks ago, a hermaphrodite pheasant was sent into the Royal Scottish Museum, and to me there came, in a strong solution of gin, certain tissues removed from the right and left sex-gland sites of this bird which, in life, had had the appearance of a hen assuming the plumage of the male. I have no information concerning the presence or the dimensions of oviduct or of those deferent ducts which are associated with testes. However, from amongst the small mass of tissues heavily streaked with jet-black pigment which had come from the left side of the body, a portion which, under the dissecting microscope, looked as though it might be degenerate ovary, was isolated and from the tissues from the right side, a small, glistening, testis-like body, about 12 by 4 mms. was taken. Histological examination of these tissues showed that on the left there was a degenerate ovary in which follicles were scanty, there being no new follicle formation, and on the right there was a hypertrophied sex-gland built up of tubules lined with a single layer of cells and held together in a connective tissue matrix. In spite of the very considerable difficulties that were encountered, it was possible to show that this right sex-gland was exactly similar in structure (and presumably also in the matter of hormone production) to that which is found in the fowl following destruction of the left ovary. This hen pheasant was assuming male plumage because her ovary had atrophied, and because on the right side of the body the rudimentary sex-gland had consequently pursued its development to adopt a tubular structure and to elaborate the male sex-hormone.

Cases very similar to this are encountered not infrequently every year. At the present time I have several such birds, sent to me by Mr. Hugh S. Gladstone of Capenoch, Thornhill, which were taken alive and which I am keeping under observation in order to find out whether or not they, like the fowl, will later re-assume a female plumage. It would be of considerable help in this study if I might receive, either dead, or preferably, alive, further instances of this distinctly fascinating phenomenon.

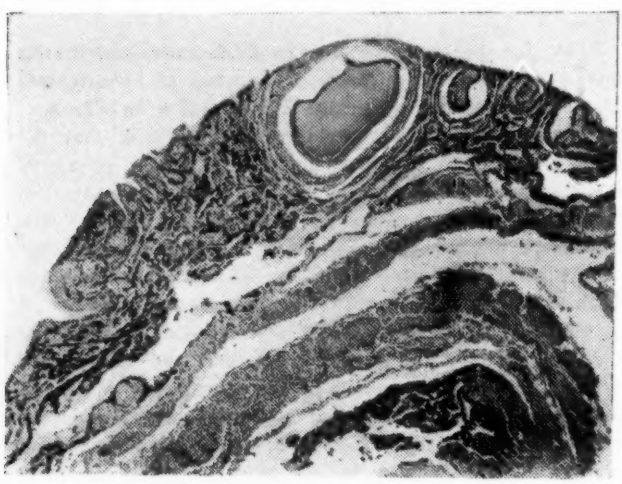


Fig. 1.

Section of the left degenerate ovary, showing scanty follicles and absence of follicle formation.

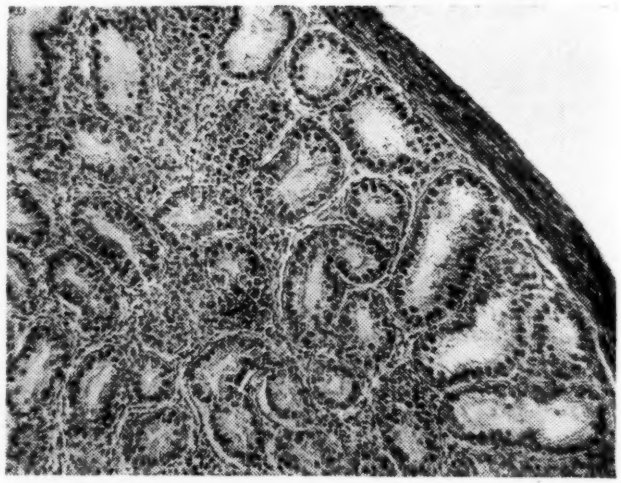


Fig. 2.

Section of the right hypertrophied sex-gland, showing tubular structure.

Bibliography.

Benoit, J. 1923. "Sur la structure histologique d'un organe de nature testiculaire developpée spontanement chez une poule ovariotomisée." *C. R. Acad. Sci.* *177*. p. 1243.

Brode, M. D. 1928. "The Significance of the Asymmetry of the Ovaries of the Fowl." *Jour. Morph. and Physiol.* *46*. p. 1.

Domm, L. V. 1927. "New Experiments on Ovariotomy and the Problem of Sex Inversion in the Fowl." *Jour. Exp. Zool.* *48*. p. 31.

———. 1929. "Spermatogenesis following early Ovariotomy in the Brown Leghorn Fowl." (*Proc. Exp. Biol. and Med.* *26*. p. 338.) Roux' Arch. Entwmech. *119*. p. 171.

Gray, J. C. 1930. "The Development, Histology and Endocrine Functions of the Compensatory Right Gonad of the Hen." *Am. Jour. Anat.* *46*. 2. p. 217.

Lillie, F. R. 1927. "The Present Status of the Problem of 'Sex Inversion' in the Hen. *Jour. Exp. Zool.* *48*. p. 175.

Willier, B. H. 1927. "The specificity of Sex, of Organisation and of Differentiation of Embryonic Chick Gonads as shown by Grafting Experiments. *Jour. Exp. Zool.* *46*. p. 409.

Zawadowsky, M. M. 1926. "Bisexual Nature of the Hen and Experimental Hermaphroditism in Hens." *Trans. Lab. Exp. Biol. Zoopark*, Moscow. *2*. p. 164.

Zawadowsky, M. M. and Zubina, E. M. "Cock-feathered Pheasants (♀♀) and Embryogenesis of Sex Glands in Hens." *Trans. Lab. Exp. Biol. Zoopark*, Moscow. *4*. p. 199.

It is suggested in *Hoard's Dairyman* (March 25th, 1931) that sucking cows can be effectively broken by applying a bit and bridle to the offender. The bit seems to have a tendency to prevent the tongue from "cupping," making sucking an impossibility. The bit should not be pulled up to the corners of the mouth as the animal then refuses to eat, but it should not be too slack as it may be easily expelled from the mouth. A common light snaffle bit is recommended as being suitable.

Grass sickness has again made its sinister appearance in Central Scotland, several deaths being reported amongst farm horses.

Avertin and its Administration.

By A. Spicer, F.R.C.V.S., Oxted, Surrey.

On the subject of Avertin, I should like to express my appreciation of the work done by Professor Wright in introducing the drug to the veterinary profession. It is always the pioneer who does the real work and it is a comparatively simple matter for others to follow on and criticise. It is proposed here to discuss the method of administration of the drug advocated by Professor Wright, with a view to overcoming any objectionable features, to see whether the dosage suggested by him cannot be reduced (as at the present time Avertin is very expensive) and to test his statement that as soon as the animal is unconscious all the Avertin has been absorbed. (I believe that in making that statement he was quoting Eichholtz).

The most objectionable feature of the present method of administration of Avertin is the leakage of the fluid from the rectum as soon as the animal becomes unconscious and especially when the tube is removed. This leakage soils the operating table and the posterior parts of the animal and, if Professor Wright is not correct in his statement, makes accurate dosage impossible. The question of leakage brings out the following point. The dose of Avertin recommended is based on the weight of the patient and thus the amount of water required to dissolve the Avertin increases in an exact ratio with the body weight but the size of the rectum and colon and their capacity to hold fluid do not do so.

You may have two dogs of exactly the same size and breed, one fat and the other thin, with a big difference in weight, but the fat dog's rectum will not hold more, but probably less than that of the thin one and with a dose of 0·6 c.c. of Avertin the amount of water necessary for a large dog becomes impossible. This method also credits the rectal mucous membrane with a selective power that requires considerable proof.

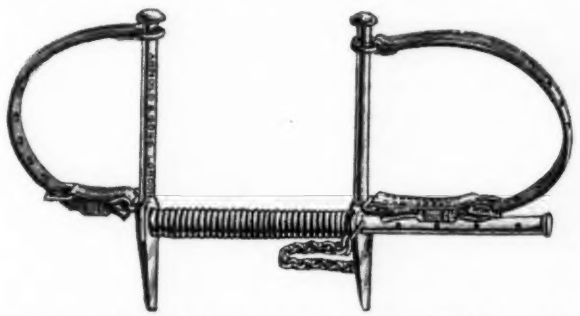
We may first compare the instructions given in Bayer's *Vade mecum* for the introduction of Avertin with those given by Professor Wright. According to the former, the solution is run in slowly from a funnel through a soft rubber tube of small calibre or a catheter. This should be vaselined and passed at least four inches beyond the anus. Not less than ten minutes should be spent in introducing the solution. After it is in, the tube may be clamped and left in position or withdrawn and a tampon of cotton wool with boric ointment applied, presumably with the object of preventing the escape of any fluid. Professor Wright, on the other hand, injects the whole of the solution by means of a catheter and syringe in less than a minute, the animal being partially suspended by the tail until it is unconscious, then he lays it on its side and allows any excess of fluid to run through the relaxed anal sphincter. If all the Avertin has been absorbed by the time the animal is unconscious Professor Wright's dose is correct and we have to make the best of the large quantity of fluid that has to be used, and the large dose of 0·6 c.c. per lb. body weight will still have to be used. If he is not correct we must find means to retain the fluid in the rectum and colon and so it may be possible to reduce the dose of Avertin and the quantity of fluid employed.

If you consider the matter you will realise that there are two ways in which you can test these questions :—

(1) By devising an instrument which will block the rectum and so prevent the escape of the fluid after it has been injected.

(2) By finding another portal of entry for the fluid, from which it cannot escape.

As it took some time to think out the instrument for No. 1 and then to get it made in a really workable form, it was decided to try No. 2 first. Subcutaneous injection would appear to be ruled out and it was decided to make an attempt at anæsthetising the animal by passing the fluid into the stomach. One could not drench the patient because of the disagreeable taste and the bulk, so the stomach tube had to be used. After one or two trials it was found that a really efficient mouth gag was necessary, because otherwise the dog bit the tubing and the fluid escaped into the mouth. The dog objects very strongly to the taste of the Avertin, and this upsets the dosage and causes struggling. To overcome this objection I asked Messrs. Arnold & Sons to make a special gag for me and so far it has proved absolutely reliable.



The advantages of this gag are that once fixed in position the dog cannot move it however much he throws his head about unless he can get his paws to it. The sliding rings hung on the outside allow the main bar to be pulled in close to the jaw, and this prevents any play in the muzzle. The peg fixes the width to which the jaw can be opened and the strap prevents the dog opening the mouth any wider. This prevents the lips being stretched too much and it is easy to get at the back teeth.

The dog is fixed on the table and an assistant steadies the head. The tube is dropped in water and the end is pressed steadily between the top of the tongue and the roof of the mouth until the dog swallows, when the tube slips into the œsophagus and can then be passed into the stomach. If the tube has passed into the trachea you will hear the air hissing up the tube, but if it is in the stomach there is usually a crackling sound. This method avoids the use of tongue forceps, for when they are used, the tube is much more likely to be passed into the trachea. When the fluid is poured into the funnel it does not always flow freely, but if the tube is drawn out a little and then pushed in again the fluid soon disappears. The whole quantity barely takes a minute to run in. Sometimes a few bubbles of gas will pass up the tube through the fluid in the funnel. The tube should be withdrawn slowly so that any fluid still in the tube will have time to run out before the end reaches the mouth. If

any of the fluid finds its way into the mouth the dog starts slobbering and retches several times, but if the head is held up he does not lose any of the fluid and the disagreeable symptoms pass off at once.

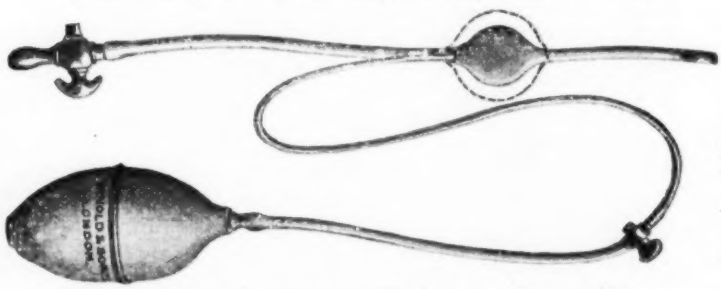
If you will read through the list of cases anæsthetised by this method you will see that 0·3 to 0·4 of Avertin per pound body weight is sufficient to keep the dog under for from one to one-and-a-half hours, which is long enough for most operations. In one case 0·4 proved fatal and in other cases where that quantity was given it has taken the dog a long time to recover. Probably 0·6 would prove fatal in every case.

In medical practice I should imagine that great stress is laid on the proper preparation of the patient before receiving Avertin, but Professor Wright has not stressed this matter beyond suggesting that it is much better to have the rectum empty than full. In his last paper on the subject he states that it has been shown that the protective rôle of the liver is proportional to its glycogen content, so that with fasting animals the dose must be reduced, and from my experience of the drug administered by the stomach tube I can fully bear this out and I consider that care should be taken where possible to see that the bowels and stomach are fairly empty before Avertin is given. The dog will go off better, be quieter and, for a given dose, the period of anæsthesia will be longer than if these precautions are not taken.

As a routine treatment I would suggest that the day previous to the operation the dog should have his breakfast, late in the afternoon a good dose of castor oil, later on a drink of milk and nothing further until he recovers from the anæsthetic. If there is no fluid in the stomach and bowels any fluid poured in will be absorbed more quickly.

One has only to operate on a patient anæsthetised with Avertin a few times to realise its advantages. For a single-handed practitioner it would appear to be ideal. The operator can confine the whole of his attention to the operation and has not to keep an eye on his kennelman to see what indiscretion he is committing with the chloroform and it permits that man to help with the operation if required. The patient is absolutely still and there is no chance of his coming round or struggling; it will save our patient a good deal of pain and will help towards more successful operations.

We now come to a consideration of the method of giving Avertin by means of an instrument which blocks the rectum and prevents the escape of any fluid. I have



devised such an instrument. It is a rubber catheter, surrounded by a rubber bulb about four inches from the end which can be inflated at will and to the required size. The catheter is inserted into the rectum and the fluid injected by the usual method and the hind parts raised until the patient is unconscious. The catheter is then pushed on until the rubber bag has passed through the anus and it is then inflated. The degree of distension can be judged by feeling below the root of the tail. Inflation should not be carried out until the patient is unconscious, because it seems to cause a certain amount of pain and the dog struggles.

A study of the records given will show that 0·3 to 0·4 of Avertin is sufficient to keep the patient anæsthetised for about the same length of time as when given by the stomach, provided the patient is properly prepared and the rectum empty—and the latter point is very essential when this instrument is used. The records will show also that, although the Avertin is all absorbed, a good deal of the water is not absorbed, as a considerable quantity escapes at the end of an hour or more when the catheter is removed; this shows that the rectum does possess the power to absorb the Avertin without the water, but I think it shows that it takes a good deal longer than five minutes to absorb it all.

Two methods of giving Avertin might appear redundant, but one may want to operate on the stomach and administration by the stomach would not then be advisable, and in cases where one wished to operate on the posterior bowel or bladder, administration by the stomach would be more advisable. It will be seen that up to case 19 everything went smoothly except for the death of No. 1, but when you come to case 20 you see that there was a complete failure with 0·4 of Avertin. It was probably due to some idiosyncrasy in the dog. His history was that he had had distemper with fits and chorea and had saline injections, bromide and hormonigen and had made a complete recovery.

Case Reports.

No. 1. *May 3rd*, 1930.—*Sealyham dog* about four years, 29 lbs. *Per os.*
Avertin 0·4.
Completely anæsthetised in four minutes; stopped breathing in 19.

No. 2. *May 12th*, 1930.—*Terrier*, a young animal, 19 lbs. *Per os.*
Avertin 0·2.
Comatose and anæsthetised in four minutes; was unconscious for one hour.

No. 3. *June 4th*, 1930.—*Airedale bitch*, 42 lbs. *Per os.*
Avertin 0·3.
Anæsthetised in eight minutes and anæsthesia lasted one hour, 25 minutes.

No 4. *June 6th*, 1930.—*Spaniel dog*, nine years old, 20 lbs. *Per os.*
Avertin 0·25.
Anæsthetised in 12 minutes, coming round in 30 minutes.

No. 5. *Airedale dog*, eight years old, 45 lbs.
Avertin 0·4.
Unconscious in eight minutes anæsthetised in 12.
Remained anæsthetised for one hour, 40 minutes; after another hour was very sleepy and could not sit up; 12 hours after was very uncertain in his gait.

No. 6. *Terrier dog*, two years, 25 lbs.
Avertin 0·3.
Anæsthetised in 3½ minutes and remained so for one hour, 20 minutes.

No. 7. *Irish Terrier*, age nine, 34 lbs.
Avertin 0·4.
Anæsthetised in eight minutes. Breathing very slow in 17 minutes, almost stopped in 45 minutes. Sensation returning in one hour, 50 minutes. Could not sit up after three hours.

No. 8. *Crossbred Sheep dog*, 36 lbs.
Avertin 0·4.
Unsteady and lying down in four minutes, seven minutes struggling and yelping, 11 minutes unconscious, 14 minutes yelping again and this continued till 18 minutes, 20 minutes unconscious and slow respiration.
One hour, 20 minutes sensation returning.
No. 9. *September 28th*, 1930.—*Fox Terrier bitch*, 12 lbs.
Avertin 0·3.
Unconscious and all reflexes gone in five minutes, which lasted for one hour, 15 minutes.
No. 10. *October 12th*, 1930.—*Cocker Spaniel*, 28 lbs.
Avertin 0·3.
All reflexes gone in eight minutes and this lasted for one hour, five minutes.
No. 11. *October 16th*, 1930.—*Fox Terrier*, age two, 15 lbs.
Avertin 0·3.
Anæsthetised in five minutes.
As all the organs were tuberculous, this dog was finished with chloroform and the amount required to kill him was rather astonishing.
No. 12. *October 30th*, 1930.—*Terrier*, 25 lbs.
Avertin 0·4.
Given *per rectum* with the new catheter. General anæsthesia in five minutes. After 30 minutes the respirations were very shallow and very slow and the catheter was removed, when about two ounces of fluid escaped. No acceleration of the respirations took place for about 10 minutes and then they gradually improved. Remained unconscious for two hours. This dog had not had any food for 24 hours.
No. 13. *November 26th*, 1930.—*Pointer*, 11 years old, 65 lbs.
Avertin 0·3.
Per rectum with new catheter. General anæsthesia in six minutes continued for an hour. The catheter was removed at the end of the hour and a large quantity of fluid escaped.
No. 16. *November 28th*, 1930.—*Spaniel*, 3½ years, 48 lbs.
Avertin 0·3.
Struggled from the fifth to the tenth minute and was anæsthetised for 45 minutes. This was given *per rectum* and the bulb inflated before the dog was anæsthetised and a little fluid was lost in the struggling.
No. 17. *November 30th*, 1930.—*Cocker Spaniel*, 20 lbs. *Per os.*
Avertin 0·3.
Unconscious in three minutes. General anæsthesia in six minutes. Remained under for two hours, 15 minutes. This dog had no food for 24 hours.
No. 18. *December 12th*, 1930.—*Pekingese*, 14 lbs.
Avertin 0·4.
Per rectum with new catheter. Unconscious in five minutes. General anæsthesia in seven minutes, which lasted for 45 minutes. No fluid escaped when catheter was withdrawn.
No. 19. *January 26th*, 1931.—*Alsatian puppy*, five months, 26 lbs.
Avertin 0·3.
General anæsthesia in eight minutes, coming round after 35 minutes.
No. 20. *January 27th*, 1931.—*Welsh Sheep dog*, 32 lbs., about one year.
Avertin 0·3 *per rectum*.
This has no effect on the dog whatever. On the 29th he received the same quantity *per os* and was unconscious for about five minutes. On January 31st he received Avertin 0·4 *per os* and general anæsthesia lasted eight minutes.

There is a prevalent notion that twice-cooked meat is considerably more indigestible than meat which is served after but one heating. In in-vitro experiments it was found that merely re-warming underdone beef had no effect on its digestibility, although re-heating the same sample for sufficient time to bring it into the category of over-cooked meat resulted in the same loss of digestibility as would have followed over-cooking in the first instance.—*Lancet.*

Wastages in Dairy Herds in Kent.

By G. H. Garrad.
Agricultural Organiser for Kent.

A year ago, at the Annual General Meeting of the Kent Milk Recording Society, I was asked to continue for a second year the investigation into the above subject by collecting figures, with the help of the milk recorders, from as many members of the Kent Milk Recording Society as were willing to co-operate.

Thirty-five members of the Society responded to an invitation to co-operate in the investigation, as compared with 50 members in the previous year. The information was collected, as before, in the first instance by the milk recorders and the particulars supplied by them have in all cases been checked with the information contained in each member's annual return to the Ministry of Agrculture. In all cases where there has been a discrepancy, or further information has been required, the member has been communicated with direct. The data required in three cases is still incomplete, so this report is based on the figures for 32 herds only.

According to the Annual Returns, there were 139 herds that were in the Kent Milk Recording Society during the whole of the year in question. They contained 4,152 cows, of which 827 either died or were sold and left the herd during the course of the year for one reason or another. This " wastage " figure of 827 out of 4,152 recorded cows, or 19·9 per cent., is, however, misleading because the 4,152 cows were not all full-time cows; they included only 2,430 full-time cows. The remaining 1,622 cows were either first-class heifers that entered the herd after the beginning of the year or other cows that were bought or sold or died or for other reasons were not in the herd for the whole of the twelve months; they were, on the average, each in the herd for 208 days and may, therefore, be taken to represent 924 full-time cows. Adding on the 2,430 full-time cows we may say that the normal number of cows in the 139 herds at any one time was 3,354. The wastage of 827 cows, then, represents 24·7 per cent. as compared with 23·0 per cent. in the previous year. On this basis the average milking life of the dairy cow is between 4 and 4⅛ years.

But the cows that left the herds were not all " losses." In some cases the owner wished to obtain or already possessed a license for the production of Grade A (Tuberculin-tested) or certified milk and he disposed of cows or transferred them to another farm because they failed to pass the tuberculin test. Such cows can hardly be considered wastages in the ordinary sense of the word. Other cows were sold because the owner was producing more milk that he needed, or he wanted to make room for heifers, or he sold them definitely for the purpose of making a profit or because he was short of cash. They were sold for " no fault " and consequently should be excluded from the figure of wastage.

Detailed figures are available for only 50 herds in 1928-29 and 32 herds in 1929-30 and they give us the following results :—

	1928-29. (50 Herds.)	1929-30. (32 Herds.)
Total number of milk-recorded cows	1,706	1,055
Number of full-year cows	917	554
Number of part-time cows	789	501
Normal No. of cows in herds	1,334	830
Number of cows died, sold or removed	324	272
Gross wastage, as percentage of normal number of cows	24·4%	32·8*%
Number removed for failing to pass tuberculin test	30	15
Number sold for no fault	23	31
Nett wastage	271	226
Nett wastage, as percentage of normal number of cows	20·3%	27·2*%
Average milking life of cows on this basis	4 yrs. 11 mths.	3 yrs. 11 mths.
Deaths from all causes	68	54
Deaths as percentage of normal number of cows	5·1%	6·5%

* These figures are rather high, because the Annual Returns show that the 32 herds that supplied full particulars of their losses had on the average a higher percentage of wastage—about 8 per cent.—than all the herds in the Society. On the other hand, the Annual Returns do not include some cows that were dry at the beginning of the milk recording year and were disposed of without coming into the milking herd during the year in question. More representative figures for all the herds during the year 1929-30 would appear to be, gross wastage, 25·9 per cent. and nett wastage, 21·8 per cent., which would make the average milking life of the cows four years seven months.

Of the nett wastage of 497 cows during the two years, 122 cows (24·5 per cent.) were complete losses to their owners, *i.e.*, cows actually died or had to be sent to the knacker. The various causes for drafting out these 495 cows may be summarised under the following headings :—

	(50 herds.) 1928-29.	(32 herds.) 1929-30.	Total.
Sterility	72	59	131
Abortion	6	6	12
Garget or loss of quarters	24	22	46
Johne's disease	24	23	47
Tuberculosis	20	9	29
Old Age	16	5	21
Poor yields	54	49	103
Other causes	55	53	108
Total	271	226	497

The " other causes " include the following :—

	1928-29. (50 herds.)	1929-30. (32 herds.)	Total.
Swallowed wire and died	5	1	6
Died as result of other accidents	4	2	6
Died from chills or pneumonia	5	5	10
Died from after-effects of calving	6	2	8
Died from acorn poisoning	6	—	6
Died as result of other poisoning	3	—	3
Died from heart-failure	2	2	4
Died from hoven	1	1	2
Wasters	12	24	36
Growth in throat	2	2	4
Hard milker or " kicker "	1	3	4
Various	8	11	19
	55	53	108

Coming now to the causes of the wastages, abortion and sterility may be considered together, as there is a very close relationship between them. In 1928-29 these two troubles accounted for 78 out of 271 wastages and in 1928-29 for 65 out of 226 wastages, *i.e.*, approximately 29 per cent. of the wastages in each year. Abortion seems to be responsible for more loss on the dairy farms of Kent than any other disease. Most of the cows drafted out on account of sterility and abortion were first to fourth-calf cows, as the following figures show :—

	(50 herds.) 1928-29.	(32 herds.) 1929-30.
1st-calf cows	17 (26%)	11 (17%)
2nd-calf cows	8 (12%)	13 (20%)
3rd-calf cows	13 (20%)	8 (12%)
4th-calf cows	11 (17%)	10 (15%)
Older cows or age unknown	29	23
Total cows drafted for abortion or sterility	78	65

It will be noticed that in 1928-29 three-quarters and in 1929-30 two-thirds of the cows drafted for abortion or sterility were first to fourth-calf cows.

Garget or loss of quarters was responsible for 24 displacements out of 271 in 1928-29 and 22 displacements out of 226 in 1929-30, *i.e.*, about 9 per cent. of the total displacements in each year.

Johne's disease is credited with 24 displacements (9 per cent. of the total wastage) in 1928-29 and 23 displacements (10 per cent.) in 1929-30. The cases were distributed over the age-groups as follows :—

	1928-29.	1929-30.
1st-calf cows	6	5 (3 slaughtered)
2nd-calf cows	9	8 (4 ,,)
3rd-calf cows	2	3 (1 ,,)
4th-calf cows	1	3 (2 ,,)
5th-calf cows	2	2 (2 ,,)
6th-calf cows	1	2 (1 ,,)
Ages unknown	3	—
Total	24	23

A high proportion of the cases of Johne's disease are complete losses, *i.e.*, the cows had to be sold to the knacker. In 1928-29 15 out of the 24 cases and in 1929-30 14 out of the 23 cases were complete losses. Losses from Johne's disease occurred in 12 herds out of 50 herds in 1928-29 and 12 herds out of 392 herds in 1929-30.

Tuberculosis was responsible for 20 displacements (7·4 per cent. of the total wastage) in 1928-29 and nine displacements (4·0 per cent.) in 1929-30. The lower figure for

1929-30 is explained by the fact that in that year all doubtful cases were entered as "wasters." It is rather difficult to separate the figures for Johne's disease, tuberculosis and "wasters" and so they are combined in the following table :—

	1928-29. (50 herds— 271 wastages.)		1929-30. (32 herds— 226 wastages.)
Johne's disease	24	...	23
"Wasters"—suspected Johne's	—	...	1
Tuberculosis	20	...	9
"Wasters"—suspected tuberculosis	—	...	13
"Wasters"—no reason given	12	...	13
	56		56

Disposals on account of poor yields accounted for 20 per cent. of the wastages in 1928-29 and 22 per cent. in 1929-30. There were also a few cows sold on account of old age in each year, which probably in most cases really means low milk yields.

Of the cows disposed of for one fault or another, the "complete losses," *i.e.*, cows that actually died or had to be slaughtered, accounted for 26 per cent. in 1928-29 and 24 per cent. in 1929-30. These complete losses were as follows :—

	1928-29.		1929-30.
Johne's disease	15	...	16
Tuberculosis	8	...	8
"Wasters"	7	...	8
Chills and pneumonia	5	...	7
Acorn and other poisoning ...	11	...	2
Results of accidents	8	...	2
Calving troubles	5	...	2
Heart trouble	2	...	3
Internal growths	1	...	2
Old age	2	...	1
Hoven	1	...	1
Other diseases	4	...	2
	68	...	54

It will be seen that Johne's disease and tuberculosis are the principal causes of mortality.

It is clear from this report that diseases cause serious losses to milk producers and that there is a distinct need for investigation on the part of veterinary workers with a view to reducing these losses. The number of cows that were drafted from these herds during the two years in question can be set out in percentages as follows :—

Cause of Wastage.	1928-29.	1929-30.
Low yield	19·9	21·7
Old age	5·9	2·2
	——25·8	——23·9
Abortion	2·2	2·7
Sterility	26·6	26·1
	——28·8	——28·8
Johne's disease	8·9	10·2
Tuberculosis	7·4	4·0
"Wasters"	4·4	10·6
Udder troubles	8·8	9·7
Pneumonia and chills	1·8	2·2
Calving trouble	3·3	0·9
Accidents	6·7	2·1
Various	4·1	7·6
	——45·4	——47·3
	100·0	100·0

The outstanding feature in the above table of figures is the high percentage of wastage due to sterility or barrenness, the result, probably in most cases, of a diseased condition of the womb following abortion. The next principal cause of wastage is poor yields. The large number of disposals on account of poor yield shows very clearly the value of milk recording, which enables the owner of the herd to distinguish his unprofitable cows and to eliminate them from the herd. It is doubtful whether the disposal of these cows can really be called a "wastage," because more money would be lost by retaining them in the herd than by disposing of them. Johne's disease and tuberculosis are the next principal causes of wastage, followed by garget and other udder troubles. Further veterinary research work into all these diseases is required as they take a heavy annual toll of the dairy herds of this country. If every cow were a good producer and there were no disease or accident, cows would remain in the dairy herd for the whole period of economic production, *i.e.*, about 10 lactation periods. This means that the replacements each year would be about 10 per cent. of the dairy herd. Our figures have shown that the annual replacements are 20 to 25 per cent. If this number could be reduced it would result in the saving of a considerable sum of money to the milk producer and would give the breeder a better chance to select only the best of his female stock and so to improve the quality of his herd.

Diet and the Teeth.

A considerable part of Professor Edward Mellanby's interesting Hastings Popular Lecture, of which the full text appears in the *British Medical Journal Supplement* of March 21st, was devoted to the relation of food to dental caries and pyorrhœa alveolaris. Mrs. Mellanby has for many years conducted researches on the manner in which disease of the teeth in animals and man is influenced by their diet, and the results of her work are being published in three parts by the Medical Research Council, which has supported this important investigation.

Dealing editorially with the Mellanby researches, the *Journal* says :—"The part played by vitamin A as an essential factor in maintaining the resistance of the body to bacterial infection is now being established, and it seems possible that in the end vitamin A will prove to be just as important as vitamin D. The normal development of the hard structures of the teeth and jaws depends on an adequate supply of vitamin D, while the normal development of the periodontal tissues is equally dependent on an adequate supply of vitamin A. Moreover, any damage done to the teeth by lack of vitamin during the development stage appears to be more or less permanent, for it can be checked, but cannot be cured, by correct feeding in later life. The equal need for the two vitamins A and D is a matter of great practical moment, for it shows that, as far as the teeth are concerned, cod-liver oil cannot be replaced by irradiated ergosterol alone, and that both vitamins must be present in a preparation if it is to form an efficient substitute for cod-liver oil, at any rate as regards the development of healthy teeth.

Communication.

Setaria labiato-papillosa (Alessandrini, 1838) or *Setaria digitata* (von Linstow, 1906).

By G. B. Purvis, F.R.C.V.S.

Negri Sembilan, Federated Malay States.

As a result of working over Malayan material from the water buffalo and ox, I conclude that *Setaria digitata*, von Linstow, 1906, is a synonym of *Setaria labiato-papillosa* (Alessandrini, 1838). Although Thwaite[1] mentions that Schwartz inclined to this opinion in his key he distinguishes the two species thus :—

Lateral lips crescentic; female tail tipped by an irregular circle of spines—*labiato-papillosa*.

Lateral lips more triangular; female tail ends in a smooth knob—*digitata*.

Boulenger[2], however, says that the lateral lips are frequently almost triangular in *digitata*, so that this point is in some doubt. He shows small differences in the shape of the dorsal and ventral lips in the two species. I have found these differences to be quite inconstant in material from the body cavity of a single ox. Figure 1 shows the one extreme and in other cases I have seen these lips agreeing with those shown in Boulenger's figure of *S. labiato-papillosa*, and I have seen an even simpler form in which one lip only was rounded (convex) with a slight indentation at the summit. In one particular male I found one lip of the type shown by Boulenger for *S. labiato-papillosa* and the other was like that shown in figure 1, though not so extreme in type.

The dorsal and ventral lips figured measure up to 58μ wide in the female and 38μ wide in the male.

I have seen no triangularity of the lateral lips in *digitata*. This character alone is quite insufficient upon which to base a species, apart from the differences between Thwaite and Boulenger on the point.

The other point of difference—in the tail of the female—also disappears on examination of a large amount of material, for I have found the terminal knob of *digitata* to be often absent, while the spines of *labiato-papillosa* vary from being absent, to a termination showing irregularity of outline, to small spines—some large and some small, right up to the stage figured by Boulenger[2] where the spines are fairly numerous and fairly large.

If from consideration of these characters the parasites could be grouped, one might consider it a case of double infestation, but the occurrence of the characters is quite irregular and no grouping is possible.

The male of *labiato-papillosa*, according to Boulenger,[2] measures 40-46 mm. in length. Baylis[3] gives 40-60 mm. I have males down to 35 mm. At first the apparent differences between the long spicule figured by Boulenger[2] and that shown in my figure 2 appeared to warrant ascribing the males to *S. digitata* or the creation of new species, but on rotation the difference disappears, apart from what I ascribe either to the omission in Boulenger's figure of a faintly-marked part (*vide* my figure 3), or to the part of the spicule marked A (fig. 3), being plate-like

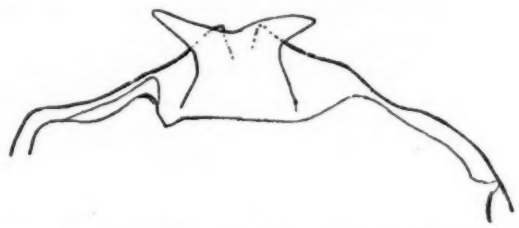


Fig. 1: *Setaria labiato-papillosa*. Dorso-Ventral View of Head, Greatly Enlarged.

Fig. 2: *Setaria labiato-papillosa*. Posterior End of Long Spicule. Lateral View, Greatly Enlarged.

Fig. 3: *Setaria labiato-papillosa*. Posterior End of Long Spicule, Greatly Enlarged.

The Outline is that of Boulenger; the Dotted Lines are the Authors. *A* represents Part Drawn by Boulenger.

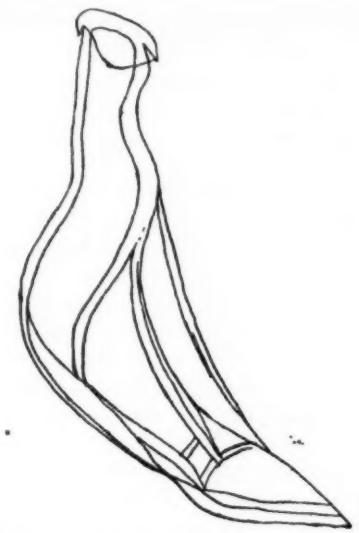


Fig. 4: *Setaria labiato-papillosa*. Short Spicule, Lateral View, Greatly Enlarged.

and drawn by Boulenger edge on—I have not been able to obtain such a view.

The spicules measure 341μ-381μ and 130μ-157μ in length respectively.

Often only three pairs of both preanal and postanal caudal papillæ can be seen.

The female of *labiato-papillosa*, according to Boulenger, measures 62-94 mm. long. Baylis[3] gives a length of up to 120 mm.

Pathogenicity.

The prevailing impression is that these worms are harmless, but this is not always the case, as one ox I *post-mortemed* bore a patch of hæmorrhagic inflammation on the visceral peritoneum about five inches in diameter, which coincided with the presence of some 6-8 *S. labiato-papillosa*. On another occasion I extracted *S. sp.* from fibrinous peritoneal exudate; on another, *S. labiato-papillosa* from the same type of lesion and, on another, I was brought calcified material of similar appearance. The host was either ox or buffalo, I cannot say which now.

My figures were drawn with the aid of a Leitz drawing apparatus.

References.

[1]Thwaite (1927). *Ann. Trop. Med. and Parasit.*, 21, 4, 427-466.

[2]Boulenger (1920). *Parasitology*, Vol. 12, p. 341.

[3]Baylis (19293. "Manual of Helminthology." pp. 216-217.

A Chapter of Accidents.

A dog was the cause of six people being involved in a series of accidents at Birmingham on Sunday last. The dog jumped out of the window of a motor-car and was in danger of being hanged by its leash. The driver attempted to save it, and the car swerved on to the pavement, knocking down Miss Doris Bushell, who was pushing a bath chair containing her aunt, Miss Elizabeth Rogers, of Vauxhall, Birmingham. The bath chair wheels buckled and Miss Rogers, who suffered from a paralysed leg, had her sound leg broken. The car continued along the pavement and knocked down a lamp-post, which fell on Miss Alice Harvey, aged 26, who received injuries to her head. The lamp-post also injured a three-year-old girl and her father. Eventually the car ran into a house and the driver was severely bruised about the head. What eventually happened to the dog is unknown.—*The Times*.

Eleventh International Veterinary Congress, London.

August, 1930.

(*Continued from page* 468.)

The Relationship of the Veterinary Surgeon to Animal Husbandry.

By Professor John Share-Jones, D.V.Sc., M.Sc., F.R.C.V.S.

The real meaning and value of veterinary science and animal husbandry have not been appreciated in Great Britain.

Our neglect to appreciate the magnitude and importance of animal husbandry has caused us to drift into the position of having to import more than 50 per cent. of the essential food products derived from animals that we need for our own consumption, *e.g.*, three years ago we imported for our own consumption:—

54 per cent. of our beef and veal.
59 per cent. of our mutton and lamb.
65 per cent. of our meat derived from the pig.
82 per cent. of butter.
68 per cent. of our cheese.
54 per cent. of our milk and milk products.

Our total meat supplies produced at home in 1918 were 59 per cent.

In 12 years this figure fell to 48 per cent. and it is still falling. In 1927 we imported nearly 16 million pounds' worth of eggs and in 1928 nearly 18 million pounds' worth. France in this latter year more than trebled her business with us in this commodity.

Our position with regard to these imports would be serious enough if the conditions in other countries remained stationary, but such is not the case; indeed, as regards meat, the U.S.A., instead of being an exporter, has now become a competitor with us for the meat of the Argentine and New Zealand. An economic situation has thus arisen which demands from us a markedly increased home production of the commodities provided by the domestic livestock. It is an urgent national need that these be produced in sufficient quantity and quality and purchasable at prices within the means of the workers.

There has been a concurrent neglect to attach a real value to veterinary science in Britain and this is reflected in the annual output of qualified veterinary surgeons. The following figures taken a few years ago show the annual output of qualified veterinary surgeons in proportion to the population in several important countries:—

U.S.A.	1 in 120,000.
Denmark	1 in 133,000.
Germany	1 in 210,000.
France	1 in 300,000.
Sweden	1 in 275,000,
but provision was being made to make it	1 in 183,000.
United Kingdom	1 in 500,000.

—out of this number the

Crown Colonies, India, and the Army take a large number, and the ratio ignoring these would be almost ... ... 1 in 800,000.

The science would appear to be in danger of ceasing to exist as a separate entity in this country unless the present narrow interpretation of its service to the nation be corrected. Veterinary science does not, or is not allowed to, play the part for which it is designed, and this is due largely to the inadequacy of the law as it stands to-day. So far as modern veterinary science is concerned the bulk of its governing legislation is based upon old acts of Parliament which, in the light of present-day knowledge and requirements, have long become obsolete. It is for those interested to consider seriously whether the time is not ripe to scrap all the existing acts and orders relating to domestic animals and to secure in their place one consolidated act which will deal with the animals, their products and by-products.

The advantages of endeavouring to secure legislation through the House of Commons are manifold and include the developing during the discussion of a real appreciation of the importance of the animal industry, its relationship to our general welfare, and the great mission which veterinary science has to perform. It would enable statistics and other information to be secured which would throw light on the effects of our negligence in dealing with animals and their products, *e.g.*, the wastage owing to the use of deleterious materials for marking sheep, and the wastage allowed to occur in cattle owing to warble fly infection. In both cases, as in many other instances, the required knowledge to deal with these matters is available and in the possession of every qualified veterinary surgeon who keeps himself abreast of the times. It is not a question of research work. Our loss due to preventable infectious disease is insignificant compared with our losses due to neglect to use available knowledge.

Amongst the developments suggested is one which will help to solve the problem of the migration of the population from the countryside to the towns. This migration can be arrested by the re-institution of country factories, such as tanneries and woollen factories and the institution of new ones to deal with animal by-products.

Another contribution to the development of the industry would be a general and compulsory system of livestock insurance. A long-felt want, this would relieve the individual farmer of the grave risk which he is obliged to carry and would pool it amongst all those engaged in the industry, but further it is to be urged on the major ground of its bearing upon the prevention of disease in the human subject and in animals, and its direct relationship to the cost of essential foods of animal origin.

The progress made in veterinary science in this country has far outstripped the measure of development of the public appreciation of its value. What is required now is not research but a vigorous and intensive application of existing knowledge.

There are movements which are being developed which might have an immense bearing upon the veterinary science of the future. The institution of the positions variously designated as Veterinary Advisory Officerships, Advisors in Veterinary Science, etc., is a matter that demands careful thought and possibly revision, depending upon our conception of the position which our science should occupy as represented by the bulk of practitioners. In some branches of agricultural science, Advisory Officers render a valuable national service, but when the branch concerned is already represented by a licensed profession, as in veterinary science or medical science, the case is entirely different. The appointment of junior men to positions carrying titles which convey to the public mind the ability and authority to deal with the whole range of veterinary science places such appointees in a difficult position and the public under a possible misapprehension. Moreover, it is not without risk of injustice to the veterinary profession, for the effect on the public might easily be to minimise the public estimate of its work.

The matter of these appointments presented its difficulty to the author as far back as in 1918, when veterinary science was being discussed before Lord Haldane's Royal Commission on University Education. Before this commission he gave evidence on behalf of a number of public bodies, and the following question and answer are not without significance:—

Commissioner (Sir William Osler): "If it were not found possible for financial reasons to organise a Veterinary Faculty on modern lines, do you think the people of Wales, and the veterinary profession, would be satisfied with a first-class department in connection with the Institute of Preventive Medicine dealing with Comparative Pathology. I mean a department with a head who would be responsible for the study of preventable diseases of animals in Wales?"

Witness (Dr. Share-Jones): "No, I would no more be satisfied with that as representative of my branch of medicine than you, as a medical man, would be satisfied that a similar institution would meet the needs of such a country as Wales when we are talking of the needs in human medicine . . ."

Notwithstanding the fact that this was the definite view expressed by the only veterinary witness summoned to give evidence before the commissioners, in the re-organised University of Wales there was established a complete school of medicine, while for the whole of Veterinary Science there was created an Advisory Officership (a post comparable to a Grade II. lectureship in the University) with a laboratory.

On becoming acquainted with this in 1923, on the eve of the General Election in that year, he made his protest publicly against that narrow interpretation of our science in a country that was pre-eminently concerned with animal husbandry. His view of the problem, therefore, is well known, and has no reference whatsoever to any of the gentlemen occupying these positions, or to those responsible for their election.

The history of Denmark during the latter part of the last century demonstrates clearly what an increased home production of animal products can do to bring about national prosperity. Similar revolutionary methods must be applied to agriculture in Britain, and when the proper relationship of the veterinary surgeon to animal husbandry is appreciated there will be presented to veterinary science the opportunity of assisting in the solution of what is probably the greatest problem of the day—the people's food.

The Relationship of the Veterinary Surgeon to Animal Husbandry.

By Professor G. M. V. A. Hruza.
Tierärztlichen Hochschule, Brünn, Czecho-slovakia.

One can trace the relationship between veterinary medicine and animal husbandry back to the dawn of civilisation, when the animals were first domesticated. Such a withdrawal from the natural conditions resulted eventually in some disturbance of health, which was proportionate to the degree of change in life affected. Shepherds, farriers, butchers and knackers were the first to observe the pathological conditions and to practice veterinary medicine on domesticated animals. From these humble beginnings modern veterinary science originated. Yet, in civilised countries of to-day, owing to the division of labour and narrow specialisation in applied science, the gulf between the breeder and the veterinarian ever widens, and it is only in recent times that the danger has been realised and attempts were and are being made to overcome it by bringing together both branches of veterinary and agricultural science in the service of an important department of national economy—animal industry.

The Government of the U.S.A. took the right step in that direction when, in 1884, they constituted "The U.S. Bureau of Animal Industry." In the old world professional, governmental and educational bodies are slowly moving towards the same goal—public recognition of the importance of the veterinarian in the domain of zootechnics and the production and distribution of animal products. In Germany, Denmark, Holland, Austria, Hungary, Checho-Slovakia, and other countries opinions are voiced that a veterinarian must not restrict himself to the treatment and prevention of animal diseases, but also ought to act as an adviser on matters relating to the choice of race, management, feeding and utilisation of agricultural animals and their products; must take more interest in the questions pertaining to the hygiene, public health, and education of the masses. In our present conditions, when the horse and its diseases are placed in the background, more attention should be bestowed upon cattle, pigs, sheep, small animals (poultry and rabbits), game, fish, bees, fur-bearing animals, dogs and cats. Everyone is aware what a calamity in agricultural industry are sterility, contagious abortion, contagious mastitis, and diseases of the young stock.

Many are the opinions quoted by the author in support of his point of view. It is clear that, without revision of the existing syllabuses of veterinary colleges in the sense of broadening the theoretical and practical base of veterinary education to encompass some of the studies that come within the domain of veterinary science, very little of practical value can be achieved. To attain this goal the following subjects should supplement the programme of studies in a veterinary college, institute or faculty: (1) cultivation of fodder plants, field and pasture husbandry; (2) fundamental agricultural subjects bearing upon animal breeding (nutrition and reproduction, etc.); (3) agricultural business management, general and agricultural accountancy and book-keeping. These subjects are actually included in the syllabus of the veterinary high school at Brünn. To enable students to obtain first the hand knowledge of these subjects under the conditions most resembling those in actual practice, there is attached to the school a farm of about 222 acres, with 40 horses, 150 cattle, 80 sheep and goats, 80 pigs, and a corresponding number of small agricultural animals. The idea is not new, it is embodied in the resolutions passed by International Veterinary Congresses held in 1906 in Budapest, and in 1909 at the Hague.

On the occasion of the Eleventh International Congress, which was held in London in August, 1930, the author proposed the following resolution, which at the same time gives in a concise form the ideas more fully discussed in his paper:—

1. The question of the relationship between the veterinarian and animal husbandry should be included, as a matter of principle, in the programme of every future International Veterinary Congress.

2. To collect data on the subject from professional organisations in all countries, an international commission should be set up; such a body would distribute the information thus collected, and would keep in touch with the representative professional bodies all over the world.

3. It is desirable that theoretical and practical instruction in animal husbandry at the veterinary schools be improved.

4. In the countries where improvement of the livestock industry lies within the domain of veterinary administration, the veterinary profession must pay the closest attention to the specifically veterinary aspects of the subject.

5. In every country records should be kept by the principal veterinary organisation, in relation to the part taken by veterinarians in affairs dealing with animal husbandry and zootechnical research.

6. From time to time educational tours through breeding districts for students and graduates should be organised by leading veterinary societies, on a reciprocal basis with the scientific and teaching personnel of such breeding establishments.

7. Efforts must be made to ensure that the veterinary aspect receives proper consideration in the legislative measures pertaining to animal husbandry.

H. F.

The Relationship of the Veterinary Surgeon to Animal Husbandry.

By Professor Dr. S. Markowski.
Rektor der Tierärztlichen Hochschule Lwów-Lemberg (Poland).

The modern status of agriculture in the world, the great spread of biological science in the last decade, and the results of observations made directly from life demand that animal husbandry, which takes a prominent place in the organisation of agriculture in western and central Europe, should be placed on a wider basis, that is to say, a more rational basis, than it has been hitherto. For a long time animal husbandry was looked upon almost exclusively as the sphere of the agriculturists who received their education at the higher or middle agricultural schools. The curricula of these schools include only lectures on plant cultivation and subjects of agricultural science, such as physics, chemistry, minerology, geology, zoology and

botany, viewed more particularly from the agricultural standpoint. Modern animal husbandry, however, demands in addition a knowledge of physics and chemistry concerning the physico-chemical processes of the animal body, knowledge of the science of morphology (embryology, histology, descriptive, comparative, and topographical anatomy), zoology and, to a much higher standard, normal and pathological physiology, as they are contained in the curricula of the Veterinary High Schools.

Sterility in mares, which occurs with increasing frequency, abortion in cows, sterility in sheep, are indications of a condition of disease in the animal body with which the veterinary surgeon alone can deal if the destruction of the breeding industry is to be avoided. On the other hand, the agriculturist must concern himself with the breeding of animals, that is to say, with the practical part of animal breeding and to provide crops which will ensure quantitative and qualitative nourishment for the animals. Thus animal husbandry rests upon two fundamental principles: hygiene, in the widest sense of the term and economics, without which there can be no question of a rational animal husbandry. The first lies in the hands of the veterinary surgeon and the second in those of the agriculturist.

The following resolutions are recommended for adoption:—

1. For the purpose of a rational development of animal husbandry there should be included in the curricula of the Veterinary High Schools teaching on animal husbandry in its widest sense, including the small animals such as birds, fish, crabs, bees and silkworms, both theoretical and practical, but in the case of the latter in broad outline.

2. For the purpose of thorough specialisation in both theoretical and practical animal husbandry a commission appointed by the 11th International Congress might consider whether it would be advantageous to create special faculties of animal husbandry within the Veterinary High Schools or special Zootechnical High Schools.

A Monument to the Horse.

A statue commemorating horses used in the late war is proposed for the city of Paris by the French veterans. More than a million horses were lost by the French army during the late war and we quote from the *Courrier Des Etats-Unis,"* which states that the monument will be the work of M. Tarras, formerly a student at the National Veterinary School at Alfort. The author, whom we quote further, states: " A monument glorifying lower animals! It may be that some forceful characters will be wont to smile. But this is proposed by former soldiers, men who saw actual service, who have been inspired to erect such a monument and who in recollection of cruel times past when men reasoned other than they do in peace times, believe that in paying homage to the horse, this will not belittle man in the least."

Germany has erected a similar monument, also, presumably, realising the lack of appreciation of the horse by the young generations.—*North American Veterinarian.*

Swine Fever Restrictions in Ireland.—The Ministry of Agriculture for Northern Ireland, in its efforts to prevent the spread of swine fever, has prohibited the sale or exposure for sale of store pigs at any public sale in Belfast.

The Veterinary Record.
May 9th, 1931.

Animal Husbandry.

It is difficult to state exactly what is implied by animal husbandry. The danger of definitions is that the very act of defining creates limitations of thought, but it is probably sufficiently inclusive to say that good animal husbandry is the art of keeping domesticated animals remuneratively healthy, and in view of the fact that restoration to health is an unremunerative process, it follows that the really essential work of a veterinarian is preventive rather than curative. That this is becoming more generally recognised is shown by the marked progressive change that has taken place in the agricultural world during the last thirty years or so. Time was when the stockowner resented advice regarding the breeding, feeding and general management of his flocks and herds. To-day, owing to the educational programmes of agricultural colleges and also to economic conditions, values and viewpoints have changed; with greater frequency, and let us hope with increasing reliance, the stockowner is turning to the veterinarian for guidance regarding the maintenance of healthy stock. For the veterinarian to be able to give advice of value to the present-day highly educated farmer it follows that he must know more of the sciences upon which successful stock-keeping depends than does he who seeks advice. His training, if sound, should place him in a peculiarly favourable position to render valuable assistance.

It is important to bear in mind that none of the branches of learning which in the aggregate educate a man to become a " qualified " veterinary surgeon, however important it may seem to be in itself, is of any value until it is linked up with others and becomes applied; on the judicious linking up depends the success of an arranged curriculum. The art and science of animal husbandry, as they should be learned by the veterinary student, are to a very large extent dependant for their being upon knowledge acquired in other departments. The practice of hygiene is essentially

the application of knowledge garnered from other sciences and put to practical uses. The reconstruction of a collegiate curriculum, necessary upon the extension from a four to a five years' course, offers an opportunity for considering if changes are necessary and, if so, in what directions. It is to be hoped that the real meaning of animal husbandry will be fully appreciated by those who hold responsible positions in directing the affairs of veterinary education; failure to realise its true significance or failure to give it proper correlation with other " subjects " would indeed be a misfortune.

Concerning our association with the domesticated animals, we may perhaps offer a word of advice to the junior student regarding his outlook on veterinary education. To learn to understand animals is surely to lay a sound foundation upon which to build, in course of time, the educational structure which stands for successful and useful veterinary practice. Whatever his academic qualifications may be, the veterinarian who fails to understand his patients must fall short of appreciating his clients' difficulties and the needs of the State. Therefore, it will be admitted that the advice of teachers and others that junior students should spend their early vacations on stock farms rather than seeing practice, is sound. For thus, and thus only, can many of the students, and particularly those normally resident in towns, acquire that knowledge of and sympathy for animals which will serve them in such good stead in years to come. While not belittling in any way the advisability—indeed the necessity—for students making opportunities for themselves to become conversant with the actual practice of veterinary science, it must be emphasised that to be too precipitate is to lose stability. In many cases it may be advisable for the recent gradute to seek an extended period of pupilage after " qualification "; earning the experience of how to earn may, in the long run, be more profitable to the individual than the immediate receipt of cash values. To those who can accept the advice we would say, in matters educational, *festina lente*.

The latest census which has been taken of live stock within the Argentine Republic discloses in the following figures:—Cattle, 32,000,000; sheep, 44,000,000; pigs, 3,500,000.

Royal College of Veterinary Surgeons.

Meetings of Council.

A Quarterly Meeting of Council of the Royal College of Veterinary Surgeons was held at 10, Red Lion Square, W.C.1, on Friday, April 10th, 1931, with the President, Sir John M'Fadyean, in the chair.

The following members were also present:—

Professor J. F. Craig and Mr. G. P. Male (Vice-Presidents), Major J. Abson, D.S.O. (Treasurer), Dr. O. Charnock Bradley, Lieut.-Colonel J. W. Brittlebank, C.M.G., Professor J. B. Buxton, Mr. J. Clarkson, Mr. J. C. Coleman, Major G. W. Dunkin, Professor S. H. Gaiger, Mr. J. Holroyd, Professor F. T. G. Hobday, C.M.G., Mr. R. Hughes, Mr. G. H. Livesey, Mr. G. H. Locke, Mr. J. W. McIntosh, Mr. W. Nairn, Major D. S. Rabagliati, O.B.E., Professor J. Share-Jones, Dr. A. L. Sheather, Lieut.-Colonel P. J. Simpson, D.S.O., T.D., J.P., Captain R. Simpson, Major A. Spreull, D.S.O., T.D., Colonel G. K. Walker, C.I.E., O.B.E., V.D., Professor A. W. Whitehouse, Mr. J. Willett, Professor G. H. Wooldridge, Captain W. G. Wragg, Lieut.-Colonel T. Dunlop-Young, O.B.E.

The minutes of the previous Quarterly Meeting, which had been printed and circulated, were approved and signed.

Obituary.—The Secretary read the list of names of members who had died since the previous meeting, the Members of Council standing meanwhile.

Correspondence.—The Secretary read apologies for absence from Professor Macqueen and Mr. J. F. Spencer; also a reply from the Lord Mayor of London to the letter of congratulation sent on behalf of the Council; an invitation from the Royal Dublin Society to the celebration of the Bi-centenary of its foundation in June, 1931, and a letter from Dr. Mohler, dated February 12th, reporting the conferring of the Diploma of Honorary Associate on Dr. Veranus A. Moore, at a meeting held in Ithaca a few weeks before his death.

Professor Macqueen.—Colonel Brittlebank: Before passing on to other business, I think this Council would like, with the President's permission, to pass a resolution sympathising with our old friend, Professor Macqueen, in his illness, and saying with what gratification we have received his letter stating that, although his progress is slow, it is steady towards a return of good health. We hope that his complete recovery to his usual health and vigour will not be long delayed.

Mr. R. Hughes: I have pleasure in seconding that proposition.

The President: I am sure such an expression of sympathy will be highly appreciated, and I therefore put it to the meeting.

The resolution was carried unanimously.

International Congress of Comparative Pathology.—The Secretary: Letters have been received with regard to the formation of a National Committee for the Second International Congress of Comparative Pathology. An invitation was received in October last from the Secretaries of the Congress requesting that a National Committee should be formed in this country, and the Council decided that they would nominate a number of members to form the

nucleus of that committee. That decision was duly communicated to the Secretaries of the Congress. In February of this year we learned that the Royal Society had been asked by the British Government to form a National Committee for this country, and I received a request on March 7th to place before the Council of this College the appointment of a representative on that National Committee. I laid the whole correspondence before the Secretaries of the Congress, and consulted the President in the matter, and on his instructions also I informed the Secretary of the Royal Society exactly what had taken place. As a result, I have received letters from the Secretary of the Royal Society suggesting that the members of the National Committee appointed by this College should form part of the National Committee appointed by the British Government.

It was resolved that the Council concur in the suggestion made by the Royal Society.

Reports of Committees.

FINANCE AND GENERAL PURPOSES COMMITTEE.

Colonel P. J. Simpson read the report of a meeting of the Finance and General Purposes Committee held on April 10th, and moved that it be received and adopted:—

The minutes of the previous meeting, having been printed and circulated, were taken as read and signed as correct.

The Treasurer submitted his Financial Statement for the Quarter, showing an adverse balance of £904 8s. 1d. and liabilities amounting to £439 17s. 10d.

The Treasurer's Statement was approved and he was ordered to pay the liabilities shown, together with cheques for current expenditure.

The Secretary reported the action taken for the recovery of arrears of Annual Fees in three cases and was instructed as to further procedure.

The Secretary submitted a statement showing the arrears of Annual Fees accrued in respect of members practising in the Irish Free State.

It was resolved to submit the statement to the Minister of Agriculture for the Irish Free State.

Estimates for repairs to (*a*) Library staircase and (*b*) the outside window sills and area steps, were receeived and considered.

It was resolved: (*a*) That the suggested alterations to the balustrade leading to the Library be not carried out; (*b*) that the question of the outside repairs be referred to the Chairman and Treasurer, with power to act.

It was resolved to make a grant of £100 to the Library for the year 1931.

The appointment of a Junior Clerk was approved, and it was agreed that, in view of the extra work of cleaning now required, the Caretaker's wages be increased by 5s. per week as from April 1st, 1931.

The Secretary was instructed that the Robing Room must not be used in future for the purpose of holding meetings.

The section of the Annual Report referring to Finance was considered and, after verbal amendments, was approved.

A letter was received from Mr. W. R. McKinna, stating that his mother and he desired to make a donation to the Library Fund of £50 five per cent. War Loan in memory of the late Mr. J. McKinna.

The offer was accepted with the grateful thanks of the Council.

Colonel BRITTLEBANK seconded the motion, which was adopted without discussion.

EXAMINATION COMMITTEE.

Professor J. B. BUXTON read the report of the Examination Committee meeting held on April 9th, and moved that it be received and adopted:—

The minutes of the previous meeting, having been printed and circulated, were taken as read and signed as correct.

A letter was received from Mr. T. J. Bosworth asking the Council to accept his resignation as Examiner for the D.V.S.M. on grounds of pressure of other work. It was unanimously resolved to request Mr. Bosworth to reconsider his decision.

A letter was received from Captain Shamshir Mirza making application for election as an Hon. Associate of the College. The letter was ordered to lie on the table.

Educational certificates Nos. 3663-3684, and 3687-3689 were submitted and approved.

Applications were received from four candidates rejected at the D.V.S.M. Examination, requesting permission to sit for re-examination without further attendance at an affiliated school. It was resolved to accede to the applications.

An application was received from candidate No. 3055, rejected in one subject at the December Examination, Class C, for permission to pass to the next year's course conditional on his passing in the required subject at the next examination. It was resolved to accede to this application on the ground of the candidate's military service.

The Secretary submitted the report of the Examiners for the Fellowship on the examination of the thesis submitted by candidate No. 73, and on his oral examination, as a result of which he was rejected. An application from the candidate for the thesis to be submitted for re-examination to other Examiners was carefully considered, but it was resolved that the application be not acceded to.

The Secretary submitted the report of the Fellowship Examiners on the thesis presented by candidate No. 76 to the effect that the thesis did not reach Fellowship standard, and could not, therefore, be accepted. The Examiners' report was approved.

The Special Sub-Committee appointed at the previous meeting submitted a copy of the letter they had directed the Secretary to transmit to the Rector of the University of Pretoria, which was approved.

The following report of the meeting of the Steel Memorial Sub-Committee, held on April 8th, 1931, was read and adopted:—

Sir John M'Fadyean was appointed to the chair.

The Secretary read the *Reference* as follows:—

"That a Sub-Committee consisting of the President, Dr. Bradley, Professor Buxton, Professor Gaiger, Professor Share-Jones, and Colonel Walker, be appointed to make recommendations for the award of the Steel Memorial Medal for 1931."

It was unanimously resolved to recommend:—

"(*a*) That the John Henry Steel Memorial Medal be awarded to Professor J. F. Craig.

"(*b*) That the Medal be of Gold."

The Secretary reported that the membership diploma of Mr. N. B. Sidhom which had been posted to the University of Liverpool had been lost, and submitted an application from the candidate to be supplied with a duplicate. The Secretary was instructed to prepare and issue a duplicate diploma, and in future to register all diplomas sent through the post.

The Secretary submitted the report of the deputation which had attended before the Committee appointed by the Economic Advisory Council to advise on the supply of Biologists. The report was approved.

It was resolved: "That notice be given to add to Schedule I (iii) after the word 'Rangoon,' in line 10, the following words: 'or an intermediate certificate granted by a recognised Board of Intermediate Education (India).'"

The section of the draft Annual Report referring to examinations was considered and approved, with certain verbal alterations.

Mr. G. P. MALE seconded the motion, which was carried.

Special Meeting of Examination Committee.

Professor BUXTON then read the report of the Special Meeting of the Examination Committee held on April 9th.

He moved that this also be received and adopted :—

The minutes of the previous meeting, having been printed and circulated, were taken as read and signed as correct.

Draft examination syllabuses were submitted and considered. It was resolved :—

" (*a*) That for each subject of the examination a syllabus defining the scope of the examination be provided.

" (*b*) That a Sub-Committee be appointed to prepare suitable syllabuses, and to report.

" (*c*) That the Sub-Committee be constituted as follows : The President, the Chairman of the Examination Committee, Dr. Bradley, Professor J. F. Craig, Professor S. H. Gaiger, Professor F. T. G. Hobday, Dr. J. Share-Jones, Colonel G. K. Walker, Dr. A. W. Whitehouse, Professor G. H. Wooldridge."

The observations of the Principals of the affiliated Schools with regard to the proposed schemes for reorganising the professional examinations were submitted, but the consideration of the matter was deferred.

Mr. R. HUGHES seconded, and the motion was adopted.

REGISTRATION COMMITTEE.

The REGISTRAR read the report of the first meeting of the Registration Committee held on April 8th :—

The minutes of the previous meeting, having been printed and circulated, were taken as read and signed as correct.

CASES.

2074 P.D.S.A. *Correspondence*. (*a*) The Secretary submitted correspondence relating to the P.D.S.A., and the letters he had written in the matter, and his action was approved.

(*b*) It was reported that in certain districts the names of the nearest veterinary surgeons were published at P.D.S.A. dispensaries, and the Secretary was instructed to write to two members to ask whether it was true that their names were being so advertised and, if so, what steps were being taken to have them removed.

(*c*) Correspondence was submitted with regard to the proposed establishment of a free dispensary at York under the management of an unqualified person with the assistance of a veterinary surgeon to deal with serious cases. The Secretary was instructed to inform his correspondent that, while the Council approved of the proposal to provide free treatment for the sick animals of the poor, they could not give their approval to any scheme which did not provide that such treatment was given by duly qualified veterinary surgeons. The Secretary was also instructed to communicate with the member of the profession interested in the matter informing him that the Council would be prepared to consider a scheme which had the full approval of all the members of the profession in the neighbourhood, on condition that the control of the proposed dispensary was in their hands and that the employment of any unqualified person at the dispensary was under their supervision.

2074a.—Using title " Veterinary Assistants." The Solicitor reported that the prosecution in this case had been dismissed, but that no award had been made as to costs.

It was resolved : " That the case be continued and that, if further evidence warranting a prosecution be obtainable, the Solicitor be instructed to proceed."

N. 9, Knowles, W.—The Secretary reported that under the name of " Cazalet " this person had again been prosecuted by the police for fraud in that he had obtained goods by falsely pretending to be a veterinary surgeon and was sentenced to 12 months' hard labour.

N. 33, Hogg, W. S.—" Canine and Feline Specialist."

N. 35, Poulton, T. P.—" Veterinary Surgeon."

These cases were held over for further evidence.

N. 38, Sketchley, T. J.—Using title " Late Veterinary Inspector, U.D., London." The Solicitor reported that a conviction had been obtained in this case with a fine of 40s.

N. 42, Hopkinson, J.—" Veterinary Specialist." This case was deferred for further evidence.

N. 43, Simpson, J.—Using title. It was resolved : "That if sufficient evidence be obtained a prosecution be instituted in this case."

Correspondence was submitted and the replies of the Secretary were approved.

The PRESIDENT : I will move from the chair that the report of the first meeting be received and adopted.

Colonel BRITTLEBANK seconded.

This was agreed to.

Colonel BRITTLEBANK : I also will move that the seal of the College be attached to the order to prosecute.

Professor BUXTON seconded, and the motion was carried.

The REGISTRAR read the report of the second meeting of the Registration Committee, held on April 9th :—

The minutes of the previous meeting, having been printed and circulated, were taken as read and signed as correct.

CASES.

2444.—Contributions to lay press. It was decided that there was no case for action.

2462, Advertising.—A satisfactory undertaking was received in this case.

2465, " Drunk and Disorderly."—The Secretary submitted a police report to the effect that this member had been convicted of being drunk and disorderly and fined £2. It was resolved to address a letter of warning to this member.

2466, Advertising.—This case was ordered to stand over pending the receipt of a reply from the member accused.

2467, Covering.—The Secretary was instructed to send a suitable letter of warning in this case.

2468, Covering.—The Secretary reported that the offence of covering had now been discontinued and the case was struck out.

2469, Advertising and covering.—An explanation was received in this case which was accepted subject to the member giving an undertaking to discontinue the use of the letters " F.E.V.M.S."

2470, Giving testimonial.—This case was deferred pending the receipt of a reply from the member accused.

2471, Touting.—It was resolved : " That if proper evidence is submitted this member be called upon to appear before the Committee at its next meeting to answer a charge of a breach of Bye-law 53 (ii)."

2472, Touting.—Correspondence was submitted in this case showing that the accused member had undertaken not to give any cause in future for his conduct to be called in question and the case was therefore struck out.

2473, Alleged fraud.—Correspondence was submitted to the effect that this member had committed frauds and the matter was in the hands of the police. The case was deferred for further evidence.

The Secretary submitted correspondence he had had with the Hon. Secretaries of the Ulster Society for the Prevention of Cruelty to Animals with regard to the provision of a veterinary hospital for the treatment of sick animals of the poor. The letter he had addressed to the Society on the matter was approved.

Correspondence was submitted and the Secretary was instructed as to the replies to be sent.

The Section of the Annual Report dealing with the work of the Registration Committee was considered and approved.

The PRESIDENT : I move that the report be received and adopted.

Colonel BRITTLEBANK seconded and the motion was agreed to.

PARLIAMENTARY COMMITTEE.

Colonel BRITTLEBANK read the report of a meeting of the Parliamentary Committee held on April 9th and moved that it be received and adopted :—

The minutes of the previous meeting, having been printed and circulated, were taken as read and signed as correct.

The Special Sub-Committee, appointed at the previous meeting, reported that they had considered the Irish Free State Veterinary Surgeons Bill, and had decided that there was no need for any special action to be taken on behalf of this college. The report was approved.

Copies of the petition to the Privy Council and of the draft Supplemental Charter were submitted for the information of the Committee. The Solicitor reported that he had submitted to the Privy Council a request that the Stamp Duty payable on the granting of the Charter might be remitted in whole or in part, and that he had heard in acknowledgment of his request that the representations made would receive due consideration.

The following report of the Public Health Acts Joint Committee was adopted :—

PUBLIC HEALTH ACTS JOINT COMMITTEE.

At a meeting of this Committee held on Wednesday, April 8th, 1931, there were present :—Representing the R.C.V.S. : Sir J. M'Fadyean, Colonel J. W. Brittlebank, Captain R. Simpson, Colonel T. Dunlop Young. Representing the N.V.M.A. : Colonel P. J. Simpson, Mr. J. C. Coleman, Dr. A. W. Whitehouse.

Colonel J. W. Brittlebank was appointed to the chair.

The Joint Committee proceeded to consider what amendments were necessary to the Public Health Acts for submission to the Committee appointed by the Ministry of Health under the Chairmanship of Lord Chelmsford, for the purpose of consolidating the law relating to Public Health.

The various Public Health Acts were submitted, together with a statement to the effect that the Government of Canada had recently imposed an embargo on the importation into Canada of meat food products from this country on the grounds of the lack of any uniform system of Meat Inspection.

It was resolved :—

" (*a*) That a memorandum be drawn up for submission to the Chelmsford Committee giving reasons for the amendment of the Public Health Act, 1875, to the following effect :—

" *Clause* 116.—Insert after the words ' Medical Officer of Health ' in line 2, and after the words ' Medical Officer ' in line 10, the words ' Veterinary Officer or Veterinary Inspector.'

" *Clause* 118.—Insert after the words ' Medical Officer of Health ' in line 2, and after the words ' Medical Officer ' in line 6, the words ' Veterinary Officer or Veterinary Inspector.'

" *Clause* 119.—Insert after the words ' Medical Officer of Health ' in line 1, the words ' or by a Veterinary Officer or Veterinary Inspector.' "

" (*b*) That letters be addressed to the Ministry of Health and the Ministry of Agriculture referring to the embargo imposed by the Canadian Government on meat food products from this country, and requesting their support of the representations to be made to the Chelmsford Committee with regard to the amendments to the Public Health Act which are necessary as a preliminary to the organisation of any uniform system of meat inspection in this country."

The Secretary reported that, on the instructions of the President and Chairman, he had communicated with veterinary officers in charge of meat inspection in counties and municipalities, requesting them to bring to the notice of their local authorities the objectionable provisions made in Clause 4 of the Slaughter of Animals Bill; he also submitted replies shewing that resolutions opposing the proposed provisions had been passed by the following local authorities :—Birmingham, Blackburn, City of London, Liverpool, Manchester.

The Secretary reported that he had received a letter from the Under-Secretary of State for Home Affairs assuring the Council that full opportunity would be given for the submission to the Poisons Board of any representations the Council may desire to make, before any rules are made in connection with the Pharmacy and Poisons Bill.

The Secretary reported the receipt of a letter from the Ministry of Agriculture stating that the question of the duties and conditions of service of Veterinary Advisory Officers was still under consideration, but that the views of the Royal College had been noted, and that the Council would be notified as soon as a decision had been reached.

Mr. Male reported that a deputation from the N.V.M.A. had attended at the Ministry, and that decisions had been reached, which, it was hoped, would meet the views expressed on behalf of the profession.

A letter was received from the Principal Veterinary Officer of Malaya requesting the advice of the Council with regard to the registration of veterinary surgeons in Malaya. It was resolved : " That the Secretary, in consultation with the Chairman of the Committee, Professor Buxton, and Colonel Walker, be empowered to draw up a suitable letter of reply."

The section of the draft Annual Report referring to the work of the Parliamentary Committee was submitted and approved.

LIBRARY AND PUBLICATION COMMITTEE.

Mr. G. H. LIVESEY read the report of a meeting of the Library and Publication Committee, held on April 10th, and moved that it be received and adopted :—

The minutes of the previous meeting, having been printed and circulated, were taken as read and signed as correct.

The Librarian reported on the work done during the preceding quarter, shewing that 85 books had been sent out on loan and that the Library had been visited by 50 members. The work of binding periodicals has been continued and the indexing has progressed. The suggestion was made that in the case of certain agricultural journals the veterinary articles should be taken out and these only preserved.

The Librarian's report was approved, and he was instructed to deal with the agricultural journals in the manner suggested.

The Librarian submitted a list of presentations to the Library made during the preceding quarter, which included a copy of " The Compleat Horseman, or Perfect Farrier," by Hope, 1706 (presented by Mr. H. L. Roberts, of Ipswich); Youatt's Volumes on the Horse and Dog (presented by Professor S. H. Gaiger); a number of pamphlets and reprints (presented by Professor F. T. G. Hobday); and a bound copy of the Annual Reports of the Chief Veterinary Officer of Birmingham for the past ten years (presented by Major W. J. Brennan DeVine). It was resolved : " That the special thanks of the Council be conveyed to Mr. Roberts, Professor Gaiger, Professor Hobday and Major DeVine, and to the other donors, for their gifts."

An application was received from Professor Buxton that he might be allowed to have certain duplicate veterinary periodicals and text-books for the Library of the Institute of Animal Pathology, Cambridge. It was decided that any unwanted duplicate volumes of periodicals should be given to the Library of the Institute of Animal Pathology, the selection to be left in the hands of the Chairman and Librarian.

A letter was received from the Ministry of Agriculture stating that they would not be able to continue the free distribution of the *Journal* of the Ministry to the Library in future.

The Librarian was instructed to communicate with the Ministry of Agriculture, pressing for the reconsideration of this decision.

A letter was received from Mr. J. C. Coleman requesting to be allowed the custody of the duplicate bust of Professor

Edward Coleman, now in the basement of the College building. It was resolved to recommend: "That the duplicate copy of the bust of Professor Coleman be placed for the time being in the custody of Mr. J. C. Coleman."

An offer was received from Messrs. Stanley Russell & Co., to provide writing pads for the library table, which was accepted.

Professor Wooldridge announced to the meeting that he would be prepared to provide a clock suitable for the mantelpiece of the Library, and on behalf of the Council the offer was accepted with acclamation.

The draft Annual Report for the year 1930-31 was submitted and considered. After verbal amendments it was resolved to recommend "That the draft Annual Report as amended be adopted for presentation to the Annual General Meeting."

Captain R. Simpson seconded the motion, which was agreed to.

Dinner Committee.

Colonel P. J. Simpson read the report of two meetings of the Dinner Committee, relating to the invitation of guests, the selection of speakers, the approval of the menu, etc., and the report was adopted.

Garnett Annuity.

The Secretary: I beg to report, as Secretary of the Victoria Veterinary Benevolent Fund, that a letter was received from the Central Veterinary Society by the Victoria Veterinary Benevolent Fund, recommending Mr. F. C. Mahon for the Garnett Annuity, and this recommendation was adopted by the Council of the Fund at its meeting in January last.

Colonel Brittlebank: As President of the Victoria Veterinary Benevolent Fund, I should like formally to move that the recommendation of Mr. Mahon as annuitant for the receipt of the Garnett Annuity, which is in the gift of this Council, be accepted.

Colonel P. J. Simpson: I have very great pleasure, in my capacity as Hon. Secretary of the Fund, in seconding that.

The motion was carried unanimously.

Notice of Motion.

Professor Buxton: Arising out of the meeting of the Examination Committee, I beg to give formal notice of motion of the alteration of the schedule, to which the Council has already agreed in adopting the report of the Examination Committee.

The President: Is there any other business that any member desires to bring forward?

Professor Whitehouse: I beg to move that we publish the correspondence with the University of Pretoria with the report of the Examination Committee. I think that the correspondence is so very good that it will be useful to have it published in the journal.

The President: I am inclined to think that that proposal should be first of all referred to the appropriate committee.

Professor Whitehouse: I should be very glad to accept your advice in that respect.

The President: Do you approve, gentlemen, of that course?

The Council signified approval.

Mr. J. C. Coleman: May I thank the Council for granting me the custody of the bust as mentioned in the report of the Library Committee?

This concluded the business of the Quarterly Meeting of Council.

. . . . .

Special Meetings of Council.

A Special Meeting of Council followed immediately upon the Quarterly Meeting, Sir J. M'Fadyean remaining in the chair.

The Secretary read the minutes of the meeting of March 5th, and these were approved and signed.

Amendment of By-law 78.

Dr. O. Charnock Bradley: I beg to move the motion which stands in my name and of which I gave notice at the last meeting of Council. It is for the purpose of reconciling what seems to be, not actually a conflict, but a discrepancy between By-law 78 and Instruction 11 to Examiners. My motion is:—

"That By-law 78 be made to read as follows:—'At the conclusion of the examination in each class the examiners shall confer, and the sense of the whole shall be taken as to the merits of the students, but the marks assigned by the examiners in any subject shall not be raised without the consent of the majority of examiners in that subject.'"

I move that the alteration be made.

Professor Buxton: I should like to second that, Sir.

The President: The motion is open for discussion . . . As there is no discussion, I will put it to the meeting.

The motion was agreed to unanimously.

Procedure.

Professor Wooldridge: Mr. President, the draft copy of the Standing Orders relating to procedure of the Registration Committee has been circulated to all members of the Council, and I propose that the Standing Orders be adopted as by-laws.

Mr. G. H. Livesey seconded.

The President: You have all had an opportunity of studying this draft, and if anyone has anything to suggest, now is the time to do so. If not, I will put it to you that the resolution be passed.

The resolution was agreed to unanimously, and the meeting terminated.

. . . . .

Confirmatory Meeting.

At a Special Meeting of Council held at the College, 10, Red Lion Square, W.C.1, on Tuesday, April 21st, 1931, there were present Sir John M'Fadyean (President) in the chair, Messrs. G. H. Livesey, J. W. McIntosh, Dr. A. Leslie Sheather, Lieut.-Colonel P. J. Simpson, Mr. J. Willett, Captain W. G. Wragg, Lieut.-Colonel T. Dunlop Young.

The minutes of the previous Special Meeting held on April 10th, 1931, were read and signed as correct.

The Secretary read letters of apology for absence from Major J. Abson, Dr. O. Charnock Bradley, Professor J. B. Buxton, Mr. J. C. Coleman, Professors S. H. Gaiger, F. T. G. Hobday, Messrs. J. Holroyd, G. P. Male, Major D. S. Rabagliati, Captain R. Simpson, Major A. Spreull, Colonel G. K. Walker, Dr. A. W. Whitehouse and Professor G. W. Wooldridge.

On the motion of the President, seconded by Lieut.-Colonel Simpson, it was resolved "That the alterations to By-law 78 and the Standing Orders relating to procedure, adopted at the previous Special Meeting, be confirmed."

On the motion of Mr. Willett, seconded by Mr. McIntosh, it was resolved "that the common seal of the Council be attached to the new by-laws."

Royal College of Veterinary Surgeons: Registration Committee.

Standing Orders Relating to Procedure.

REMOVAL AND RESTORATION OF NAMES.

I. Removal.

The procedure for the removal of names from the Register of Veterinary Surgeons under the provisions of S. 6 of the Veterinary Surgeons Act, 1881, shall in cases of *convictions* reported against members* be as set out in Section A, and, in cases of complaints of *disgraceful conduct*, as set out in Section B.

A.

Convictions.

1. On notification being received by the Registrar of the conviction of any Member of a misdemeanour or higher offence, the Registrar shall communicate the fact to the President or Acting President, and, if so authorised by him, shall send a notice to the Member in the form marked "Form R.1," as set out in the Appendix.

The Registrar shall submit to the Registration Committee at its next Meeting the evidence of the conviction and copies of any letter or other documents submitted by the Member.

3. At the opening of the inquiry the Registrar shall read the particulars of the conviction and, if the Member is not present, shall satisfy the Committee that the notice was duly sent to the Member by registered post to his last-known or registered address.

4. If the Member is present he will be called upon to open his case and produce evidence in support of it. He may address the Committee either before or at the conclusion of his evidence, but only once.

5. If the Member has produced evidence, the Registrar may be heard.

6. Upon the conclusion of the case (or, if the Member has not been present, after the reading of the conviction by the Registrar), the Committee will deliberate thereon in private, and at the conclusion of the deliberation the Chairman shall put the following Motion:—

That is has been proved to the satisfaction of the Committee that has been duly convicted of and that the facts relating thereto are as follows:—

If the Motion is carried, the Registrar will so report to the Council at its subsequent Meeting, and the Council will thereupon decide whether, on the conviction proved, they shall proceed to pronounce judgment, or shall postpone judgment. For this purpose the President shall put the following Motion:—

(i) That having been proved to have been convicted of the misdeameanour or offence of he has, in the opinion of the Council, been guilty of conduct disgraceful to him in a professional respect.

If this Motion is not carried, the case shall be dealt with as the Council in the circumstances may direct. If the Motion is carried, the President shall then put the following Motion:—

(ii) That the Council do now proceed to pronounce their judgment on the conviction against Mr.

If Motion (ii) is not carried, the judgment of the Council may stand postponed until the next or some subsequent Meeting as the Council shall direct.

If Motions (i) and (ii) are carried, the Council will proceed to vote on the following Motion, to be put from the Chair:—

(iii) That having been proved to have been convicted of the misdemeanour or offence alleged against him, and having on that account been found guilty of "conduct disgraceful to him in a professional respect," the Registrar be directed to remove from the *Register of Veterinary Surgeons* the name of

B.

Unprofessional Conduct.

1. When a complaint of Unprofessional Conduct is made against a Member, the Registrar shall prepare a Summary of the complaint and of the documents received, and submit a copy of the same to the Registration Committee with the notice calling the Meeting.

2. If the Committee are of opinion that a *prima facie* case for inquiry has not been made out, the case shall not proceed further, and the Registrar shall inform the party making the charge of the decision of the Committee after its approval by the Council.

3. If the Committee resolve that the case is one in which a formal inquiry ought to be held, notice shall be sent to the Member by the Registrar in the form marked "Form R.2" as set out in the Appendix.

4. The Registrar shall also send a copy of the notice, and of any documents which may accompany it, to the complainant, who must, unless specially exempted from so doing by the Committee, also attend to present his case, which may be conducted on his behalf by his Solicitor with or without Counsel.

5. At the opening of the inquiry the Registrar shall read the notice to the parties, and if the accused Member is not present the Registrar shall satisfy the Committee that the Notice was duly sent to him by registered post to his last-known or last registered address.

6. Where a complainant appears personally or by Counsel or Solicitor, the following shall be the order of procedure:—

(i) The case for the complainant will be first opened and evidence produced in support of it. At the conclusion of the complainant's evidence his case will be closed.

(ii) The case for the defendant will then be submitted, and evidence produced in support. He may also address the Committee personally and by Counsel or Solicitor either before or at the conclusion of his evidence.

(iii) At the conclusion of the case for the defence the complainant may (if the defendant has produced evidence) address the Committee in reply. If evidence has not been produced the complainant may not, without the special leave of the Committee, address the Committee in reply.

7. Where there is no complainant, or no complainant appears, the following will be the order of procedure:—

(i) The Registrar will state the facts of the case and submit evidence in support of it.

(ii) The case for the defendant will then be stated and evidence produced in support. He may also address the Committee either before or at the conclusion of his evidence.

(iii) If evidence has been produced the Registrar may be heard.

8. Upon the conclusion of the case (or, if the Member has not been present after the reading of the charge by the Registrar and hearing the complainant) the Committee will deliberate in private. The Chairman himself may sum up the evidence submitted by the parties as affected by examination, cross-examination, and re-examination, or may call on the Solicitor or Standing Counsel so to do. At the conclusion of the Committee's deliberations the Chairman will put the following Motion:—

That the Committee find that the complaint made against has been proved to their satisfaction, and that they find him guilty of having

* Wherever the word "Member" is used in these Orders, it is to be held as including "Existing Practitioner."

If this Motion is not carried, the Report of the Committee to the Council shall be that the complaint made against has not been proved to the satisfaction of the Committee.

If the Motion is carried, the Committee will so report, and at the Meeting of Council at which the Report is received the President shall put the following Motion :—

(i) That having been proved to have he has, in the opinion of the Council, been guilty of conduct disgraceful to him in a professional respect.

If this Motion is not carried, the case shall be dealt with as the Council in the circumstances may direct. If the Motion is carried the President shall then put the following Motion :—

(ii) That the Council do now proceed to pronounce their judgment in the case.

If Motion (ii) is not carried, the judgment of the Council may stand postponed until the next or some subsequent Meeting, as the Council shall determine.

If Motions (i) and (ii) are carried, the President may, and unless otherwise determined by the Council shall, put the following Motion :—

(iii) That having been judged to have been guilty of conduct disgraceful to him in a professional respect, the Registrar be directed to remove from the *Register of Veterinary Surgeons* the name of

GENERAL.

1. At the hearing of a case by the Registration Committee the Meeting shall be attended by the Solicitor to assist in the conduct of the case.

2. At all disciplinary inquiries evidence may be taken by oral statement or by a written statement, verified by statutory declaration, but the Committee may decline to admit unsworn documentary evidence.

3. A copy of all duly attested material documents to be laid before the Committee as evidence at the hearing shall be furnished to each Member at the hearing of the case.

4. Where a witness is produced by any party he shall first be examined by the party producing him, then cross-examined by the other party, and then re-examined by the party producing him.

5. Members of the Committee may put, through the Chair, such questions to the parties or witnesses as the Chairman may think proper.

6. If it is necessary to adjourn the hearing, the Committee may at the subsequent hearing hear the Member and the complainant, if any, and receive such further evidence in relation to the charge as they may think fit.

7. If it be decided to postpone their finding to another Meeting, the Committee may at the subsequent Meeting hear the Member and the complainant, if any, and receive such further evidence at to the conduct of the Member in the interval as they shall think fit.

8. Six weeks before the adjourned or postponed hearing notice shall be given by the Registrar to the parties of the day fixed for the further consideration of the case or for the finding, as the case may be, requesting the attendance of the parties on that day before the Committee.

9. If any further facts or evidence are to be submitted, a statement in writing, verified by statutory declaration, must be submitted to the Registrar not less than three weeks before the Meeting.

10. Copies of all duly attested documents received from one party shall be supplied to the other party, who may, not less than ten days before the adjourned or postponed Meeting, furnish to the Registrar a statement in writing, verified by statutory declaration, of any facts or evidence in reply thereto, and the Registrar shall forthwith supply a copy to the other party.

11. No further facts of evidence, otherwise than as provided by the preceding paragraph, may be presented to the Committee except by leave of the Committee.

12. At the reconsideration of the case the procedure with respect to the new evidence submitted shall be the same as at the first hearing.

13. Whenever a name is ordered to be removed from the *Register*, the Registrar shall forthwith send notice of such removal to the Member by letter addressed to his last-known registered address, and shall also send forthwith notice of the removal to the public Press, and to the Registrar of the Veterinary Council of the Irish Free State in case of a Member residing in that Dominion.

II. Restoration.

1. Restoration by the Council :—

(*a*) Where the name of a Member has been removed from the *Register* by order of the Council, it may not be restored except by resolution of the Council at a Meeting at which not less than two-thirds of the Members are present, and with the consent of three-fourths of the Members so present.

(*b*) The application must be in writing, addressed to the Council, must state the grouds on which the application is made, and must be signed by the applicant.

(*c*) It must be accompanied by a Statutory Declaration in the prescribed form (Form No. R. 3), and must be accompanied by at least two certificates of identity and character (Form No. R. 4) signed by a Justice of the Peace and a Registered Veterinary Surgeon, or by two Registered Veterinary Surgeons.

(*d*) On receipt of an application it shall be laid before the Registration Committee for consideration and report to the Council.

(*e*) The Report shall be considered by the Council in private, and, if restoration is decided upon, the resolution of the Council shall be in the following form :—

That the Registrar be ordered to restore the name of to the *Register of Veterinary Surgeons*.

2. Restoration by the Registrar.

(*a*) Where the name of a Member has been removed at his request, or with his consent, or where a name has been removed by the Registrar, acting under the authority of S. 5 (4) of the *Veterinary Surgeons' Act*, 1881, he may restore such name on receipt of the prescribed Statutory Declaration.

(*b*) The Registrar shall report all such cases to the Registration Committee, and shall reserve any application which to him may appear to be doubtful for the consideration of the Committee.

(*c*) The Statutory Declaration shall be in the prescribed form (Form No. R. 5). It must be impressed with a 2s. 6d. stamp, and declared before a Commissioner for Oaths or a Justice of the Peace.

APPENDICES.

Form R.1.

Sir,—On behalf of the Council of the Royal College of Veterinary Surgeons, I have to inform you that intimation has been received to the effect that you were on the at convicted of the following and were sentenced to

I am directed to give you notice that on the of a Meeting of the Registration Committee of the Council will be held at 10 Red Lion Square, London at p.m. to consider and decide whether the conviction recorded against you has been proved to their satisfaction, and if so whether it shows that you have been guilty of conduct disgraceful in a professional respect. The Committee will report to the Council their finding in order that the Council may judge whether your name shall be removed from the *Register of Veterinary Surgeons*, in pursuance of the powers conferred upon them by the *Veterinary Surgeons' Act*, 1881, Section 6.

You are invited and required to state in writing what you may desire to lay before the Committee with regard to the conviction, and to attend before the Committee at the above-named time and place to show cause why your name should not be removed from the *Register*.

You are hereby informed that if you do not attend as required the Committee may proceed to hear and decide upon the case in your absence. You are at liberty to be represented at the inquiry by Counsel or Solicitor, and,

if you elect to be so represented, your Solicitor should communicate with me in writing, and in any case any answer or other communication which you may desire to make should be addressed to me in writing so as to reach me not later than 21 days before the day appointed for the hearing of the case.

Yours faithfully,

Registrar.

Form R.2.*

Sir,—On behalf of the Council of the Royal College of Veterinary Surgeons, I give you notice that information and evidence have been submitted to the Council by which the following complaint is made against you :—

and that consequently, it is alleged, you have been guilty of conduct disgraceful in a professional respect within the meaning of Section 6 of the *Veterinary Surgeons' Act*, 1881.

I am directed further to give you notice that on a Meeting of the Registration Committee of the Council will be held at 10 Red Lion Square, London, at P.M., for the purpose of ascertaining the facts of the case and reporting to the Council their finding. The report of the Committee will, by virtue of S.8 of the Act, be conclusive as to the facts.

You are therefore invited and required to state in writing what you may desire to lay before the Committee in regard to the complaint made and to attend before the Committee at the above-mentioned time and place to establish any denial or defence that you have to make to it. You are hereby informed that if you do not attend as required, the Committee may proceed to hear and decide upon the case in your absence.

You are at liberty to be represented at the inquiry by Counsel or Solicitor, and if you elect to be so represented, your Solicitor should communicate with me in writing, and in any case any answer or other communication which you may desire to make should be addressed to me in writing so as to reach me not later than 21 days before the day appointed for the hearing of the case.

Yours faithfully,

Registrar.

Form R.3.

Statutory Declaration for Applicant for Restoration to the Register of Veterinary Surgeons.

I, the undersigned,
of
in the County of Gentleman,
do solemnly and sincerely declare as follows :—

1. I am the person originally registered in the *Register of Veterinary Surgeons* as
having qualified at the College in
and I hereby apply for the restoration of my name to the *Register*.

2. After an enquiry held on the Council of the Royal College of Veterinary Surgeons ordered my name to be removed from the *Register* for disgraceful conduct in a professional respect.

3. Since the removal of my name from the *Register* I have been residing at and my occupation has been

4. It is my intention, if my name is restored to the *Register*, to

5. The grounds of my application are

(Signed)

Declared at
on
before me

(Justice of the Peace or Commissioner to Administer Oaths.)

* The first paragraph of this letter may be varied according to the circumstances of the case.

Form R.4.

Certificate in Support of Application.

I,
of
certify as follows :—

1. I am (*state whether Member of the College, or, if not, what office is held*).

2. I have read the Statutory Declaration made on

3. The said
is the same person as
whose name formerly stood in the *Register of Veterinary Surgeons*, with the following address :

4. I have been and am well acquainted with the said

both before and since his name was removed from the *Register of Veterinary Surgeons*, and I believe him to be now a person of good character, and the statements made in the said Declaration are, to the best of my knowledge, information, and belief true.

(Signed)

Address :
Date :

Form R.5.

Statutory Declaration by Applicant for Réstoration to the Register of Veterinary Surgeons, and Certificate in support.

We,

in the County of Gentlemen,
and
of
in the County of
do solemnly and sincerely declare as follows :—

And first I, the said for myself say :—

1. I obtained my Diploma as a Member of the Royal College of Veterinary Surgeons on the day of 1 .

2. I am informed that my name has been removed from the *Register of Veterinary Surgeons* on the ground that I have not furnished the Registrar with information as to the change of my address under the provisions of Sub-section 4 of Section 5 of the *Veterinary Surgeons' Act*, 1881.

3. The reasons why I have not complied with the requirements of that Sub-section are as follows :—

4. I hereby apply to have my name reinstated on the said *Register*, and am willing to pay such penalty as the Council may deem fit, in accordance with Section 7 of the said Act.

And I, the said
say that I have known the said for years and upwards, and that he is the same person as
whose name appears on the *Register of Veterinary Surgeons* for the year 1 .

And we make this solemn declaration, conscientiously believing the same to be true, and by virtue of the Provisions of the *Statutory Declaration Act*, 1835.

Declared by the said
and
at
in the County of
on the day of 19 .
Before me

(Justice of the Peace or Commissioner to Administer Oaths.)

Cows assimilate minerals much better when they are on pasture than they do on hay or when kept in the barn. They appear indifferent to mineral and vitamin feeding and also to irradiation with ultra-violet light. At the Wisconsin experiment station it was found that the use of cod liver oil in dairy rations decreased the butter fat production.—(*The Holstein Breeder and Dairyman*, March, 1931.)

Clinical and Case Reports.

A Peculiar Feather Tumour of the Canary.

By F. A. E. Crew and L. Mirskaia.
Department of Animal Genetics, University of Edinburgh.

Breeders of the Norwich Plainhead are considerably disturbed by the frequency with which their birds develop "lumps" at the time of the moult. These lumps completely disfigure valuable birds and render them useless for breeding. They may occur all over the body, but are particularly common on the wings. As many as six have been removed from a single bird. In the early stages of their development they are seen as rounded, glistening bodies of the size of a pea, rising from the skin and hidden among feathers of normal appearance. As they increase in size, their surface becomes dried and dull, and commonly at one point on the bulging surface, dried powdery matter is seen to be exposed. By means of a scoop the lump can be evacuated, and its contents shown to be powdery superficially and fatty below. The lump itself can be shelled out of the skin to leave a gaping pocket, vascular only in the case of the smaller lumps. Sections of such a shelled-out lump show that the tumour consists of bundles of imperfect feathers.

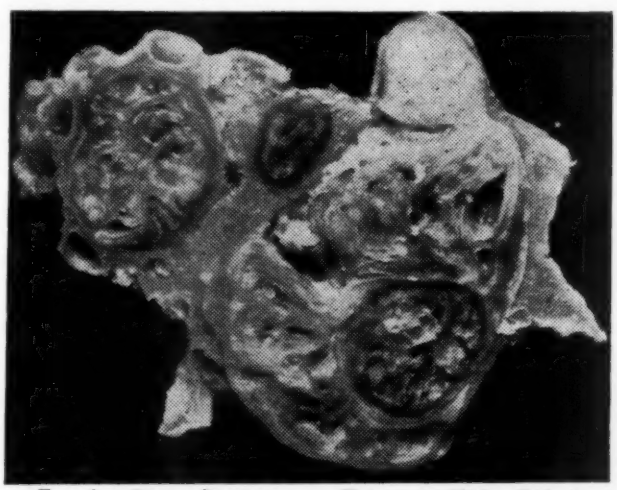


Fig. 1. Cross Section of a Tumour. X12. This lump consists of bundles of feathers in a matrix of fibrous tissue.

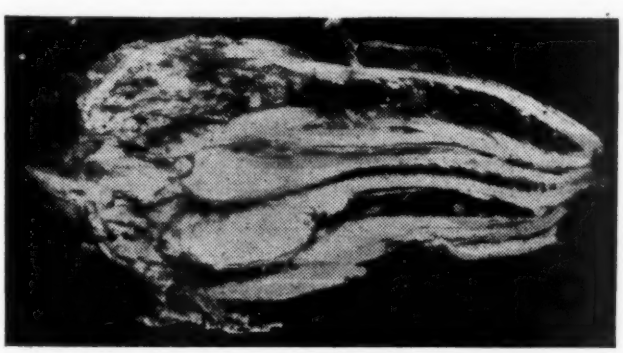


Fig. 2. Longitudinal Section of a Tumour. X12.

Fig. 3. Longitudinal Section of a Tumour. X12. Showing the bundle of feathers.

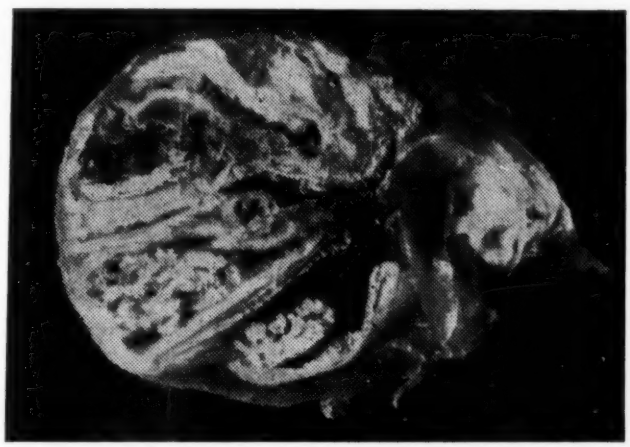


Fig. 4. Cross Section of a Tumour. X12. Before treatment with fat solvent—xylol and alcohol.

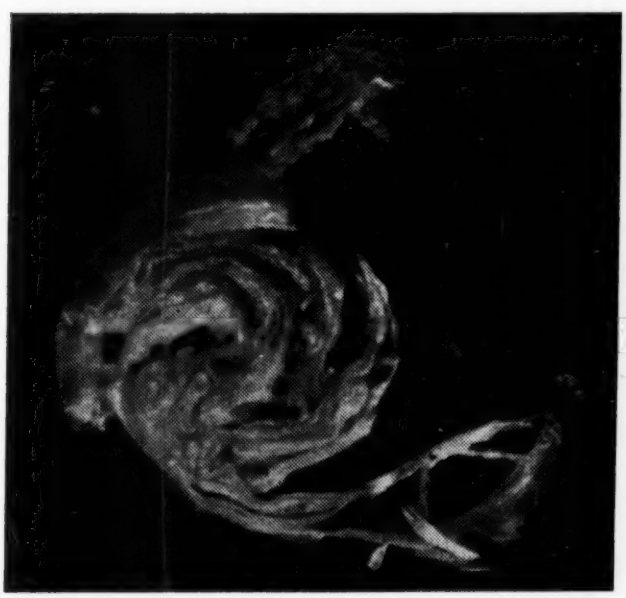


Fig. 5. The Same After Treatment. The fat has been removed and keratin only remains.

Thus, the lumps which affect the Norwich Plainhead canary are shown to be due to an abnormal feather development. They consist of imperfect feathers in bundles in which are more or less concentric layers of keratin and fat.

It would seem that their development is due either to an excess of fat which the growing feather cannot utilise, or to an inability on the part of the growing feather to utilise fat of normal amount.

The condition is not infectious or contagious, in our experience. The information which has been provided by the breeders points directly to the conclusion that hereditary factors are responsible. This matter is now being examined. Since fat metabolism seemed to be involved in the etiology of this condition, and since it is established that an artificial moult can be induced by means of thyroxin, it was decided to attempt to cure the condition by offering a solution of thyroxin in place of the drinking water. For three days the birds drank of this solution placed in a watch-glass above their drinking water, but thereafter refused it. Injection was then adopted as the method of administration. A moult was quickly induced in birds from which the larger tumours had previously been removed. A new plumage was quickly assumed and no "lumps" developed. The only untoward effect of the treatment was a depigmentation of the feathers. Save for a vivid yellow spot above each eye and a rich yellow throat and chest, the canary that was self yellow is now white. Therapy is not our province: we suggest, however, that some preparation of thyroxin in smaller doses and in a form that makes *per os* administration possible might be given in the treatment of this condition, which, as has been stated, is causing much trouble to breeders of the Norwich canary.

Tuberculous Spermatic Cord in a Gelding.

By J. G. Heban, M.R.C.V.S., Whitchurch.

A black Shire yearling colt was castrated (standing and clams) on May 20th, 1930. The animal seemed quite normal until February of this year, when he was noticed to be losing flesh.

I was asked to see him on May 18th and found him emaciated, blowing and showing a temperature of 104° F. My attention was called to what seemed a typical scirrhous cord, but as it was not very big and did not seem to extend into the canal, a doubt was expressed as to its being the cause of the general condition.

A few "red worms" were found in the fæces, and the animal was dosed with ol. chenapod., ol. tereb. and ol. lini. and pot. iod. given in mashes. Feeding, etc., were attended to. No improvement took place and the animal died on the night of April 24th.

Post-mortem disclosed a scirrhous cord, which, however, did not invade the canal, but the spleen substance showed multiple tuberculous lesions—about the size of a duck's egg. The cord and part of the spleen were sent to Dr. Sheather who reported "It is a case of tuberculosis of the spermatic cord. The spleen lesions are also tuberculous, and no doubt represent an extension from the primary infection of the cord."

There was no evidence of the animal ever having had cow's milk, but the bovines on the farm on which he was working are heavily infected with tuberculosis.

Review.

"The Veterinary Bulletin."

As our readers have already been informed, with the December number, 1930, the *Tropical Veterinary Bulletin* ceased publication, and in its place the Imperial Bureau of Animal Health is publishing a new journal under the title of the *Veterinary Bulletin*. This includes the matter of the *Tropical Veterinary Bulletin* and, in addition, the diseases of temperate climates. The first volume of about 584 pages is being issued in four quarterly parts, but from January, 1932, the journal will be published monthly, and the volume will run to about 600 pages.

It is to be noted that this new publication will deal with all aspects of animal health, in so far as they relate to original research and to administrative control; but it will not deal with clinical material from the point of view of the practitioner. The subjects dealt with are classified under the following headings:—(1) Diseases caused by bacteria and fungi; (2) diseases caused by protozoan parasites; (3) diseases caused by filterable viruses; (4) diseases caused by metazoan parasites; (5) diseases, general; (6) diseases related to nutritional and metabolic factors; (7) diseases related to genetical factors; (8) invertebrate vectors of disease; (9) public health; (10) mineral and plant poisoning; (11) specific drug therapy; (12) miscellaneous; (13) official and other reports; (14) book reviews. The subjects regarded as major ones from the point of view of the Bureau are Nos. 1, 2, 3, 4, 5, 9, 10, 13, and 14.

The first issue of *The Veterinary Bulletin*, that for April, 1931, shows that, while the page size has been increased to crown quarto, the admirable style of type and arrangement of matter possessed by its forerunner have been retained. The new *Bulletin* is a comprehensive publication which, both as to matter and form, merits unreserved commendation, which is to be extended also not only to the Executive Council and staff of the Imperial Bureau of Animal Health, with Mr. W. A. Pool, M.R.C.V.S. as editor, but to Messrs. H. R. Grubb, Ltd., who are also the printers of the *Veterinary Record*.

The *Bulletin* should fulfil a very useful function, and be of value alike to veterinarians and medical men. It is published at an annual subscription of £1, and is obtainable from the Imperial Bureau of Animal Health, Veterinary Laboratory, Weybridge, Surrey.

Economic experiments in the production of table poultry on practical lines are being carried out under the National Poultry Institute Scheme at the South-Eastern Agricultural College, Wye, Kent. A first report on these experiments has been published and is obtainable from H.M. Stationery Office, Adastral House, Kingsway, London, W.C.2, price 1s. 8d. post free (Ministry of Agriculture and Fisheries Bulletin No. 18). A second report will, it is hoped, shortly be available, and will be published as soon as possible.

Russia has over 60 State sheep farms, their average size being about 110,000 acres, and each carrying from 10,000 to 20,000 sheep. Beef producing farms, ranging in area from 100,000 to 300,000 acres, carry 3,000,000 head of cattle.

Abstracts.

[A Study of the Complement—fixation Values in Cattle subjected to two Successive Subcutaneous Injections of Abortus Bacterin at Intervals of three, four and five days respectively. "Komplement bindnings värdena efter tva subkutana vaccinationer pa nötkreatm med abortvaccin utförda i följ med resp: tre, fyra ocn fem dagars mellantid mellan vaccinationerna." Sundberg, R. *Sv. Vet-Tidskft,* xxi, 2, 60-67.]

The author sumarises the results of his investigations as follows:—

(*a*) If a subcutaneous injection of abortus bacterin be repeated three or four days, the maximum values of the complement-fixation (and agglutination) tests are higher than those following a single injection.

(*b*) If the second injection be repeated after five days have elapsed the increase in values of these tests is practically nil and the second injection therefore useless.

(*c*) *Remarks.*—Assuming that increasing or high complement-fixation (and agglutination) values are indications that the antigen is still active in the organism and that this action is of an injurious nature, then this same period should coincide with the negative phase, *i.e.*, when the bacterin acts injuriously.

On the same basis a second injection of bacterin leading to a regular increase in complement fixation values must also increase the degree of injury exerted by the bacterin on a given organism.

G. B. B.

The Value of Microscopical Examination of Milk for Tubercle Bacilli.

By means of a calculation based on the volume of milk examined, the area of the microscopic field and the number of tubercle-bacilli per 100 fields, the author concludes that without concentration—and in his opinion none of the concentration methods hitherto proposed is really successful—the microscopical examination of milk for tubercle-bacilli is limited to the detection of from 10 to 500 bacilli per c.c. or, if consideration is confined to milk giving a deposit of not more than 2·5 c.c. per 100 c.c., the examination is limited to the detection of not less than 10 to 50 bacilli per c.c., and is about 500 times less sensitive than the biological method. It has been shown by W. G. Savage that a single tubercle-bacillus can be detected biologically in 40 per cent. of trials and two tubercle-bacilli in 67 per cent. of trials, and it may be reasonably assumed, therefore, that five tubercle-bacilli will be detected by the biological test. [D. R. Wood *Analyst*, Vol. lvi, No. 660, 1931, 179.]

A Simple Staining Method for *B. tuberculosis*.

A method of cold staining suggested first by Charles F. Elvers (*Journ. of Urology*, 17, No. 6) is useful for the physician, as it requires very little time. A stable concentrated solution is prepared of methyl violet cryst., 1·2 gms., absolute alcohol 4 gms., phenol cryst. 2 gms., xylol 10 gms. A fairly thick smear of sputum is prepared on an object-glass and well dried by passing a few times through a flame. About eight or ten drops of the concentrated stain are then equally distributed over the object-glass and allowed to remain for four minutes; six or eight minutes are sufficient to produce a deeper staining of the bacilli for photographic purposes. Decolorisation with 0·25 per cent. H_2SO_4 in alcohol follows, until the object-glass shows a light violet colour. After rinsing under a strong water-jet and drying with clean blotting-paper, the glass is finally passed a few times through the flame. Under the microscope (oil immersion 1 : 800 or 1,000) the bacilli appear deep purple on a pale violet ground; all known forms of *B. tuberculosis* can sharply be differentiated. Leucocytes can be shown by subsequent light straining after Loeffler (40 seconds). [Percy Deseniss, *Muench. Med. Wch.*, 1930, 77, 633. Ex. *Pharm. Journ.*]

In Parliament.

The following questions and answers have been recorded in the House of Commons recently:—

South African Cattle (Import Restrictions).

Sir J. Lamb asked the Minister of Agriculture if, in view of the epidemic of foot-and-mouth disease in Rhodesia, he is taking any special precautions against the importation of the disease by the landing of live cattle from that country for slaughter here?

Dr. Addison: In consequence of this outbreak, I have made an Order prohibiting the importation of any further cargoes of animals from Southern Rhodesia. Special provision has, however, been made for the landing of a cargo of cattle from that Colony which had already been shipped from Cape Town before the outbreak was reported, subject, however, to the animals, on veterinary examination before landing, being found free from disease. Further, I have considered it expedient to prohibit the importation of animals from any part of the Union of South Africa for the time being, until fuller information is available as to the extent of the outbreak, and as to any consequential developments in South Africa.

. . . . . .

Isle of Ely (Agricultural Organiser).

Mr. de Rothschild asked the Minister of Agriculture whether he will take immediate steps to urge the appointment of an agricultural organiser by the Isle of Ely County Council in order to secure that the results of scientific investigations at the agricultural research stations should be passed on to the Isle of Ely farmers and that the Isle of Ely may be no longer one of the few counties which derive no benefit from the setting up of these Government organisers?

The Minister of Agriculture (Dr. Addison): The county council are well aware of my desire that they should appoint an agricultural organiser; my views on this subject were conveyed to the education committee as recently as last October. I do not think, therefore, that any useful purpose would be served by further representations to the local authority at present.

. . . . . .

Chemical Warfare (Experiments on Animals).

Mr. Freeman asked the Secretary of State for War the number of experiments and the number of animals involved in each of the chemical research laboratories during 1930?

Mr. Shaw: I understand from my hon. Friend that he is using the term "experiment" to cover a single investigation in which one or more animals may be used, and the figures given below are on that basis. The number of experiments carried out at the Chemical Defence Experimental Station, Porton, during 1930, and the number of animals involved, were 131 and 719 respectively; the number of animals involved in experiments at the Physiological Laboratory, Cambridge, during the same period was 85. Exact figures as to the number of experiments at Cambridge are not available at the War Office, but I will obtain them and send them to my hon. Friend.

Mr. Freeman asked the Secretary of State for War what is the largest number of animals involved in one experiment since the opening of the research laboratories; when

it was performed; and for what what purpose?

Mr. Shaw: The largest number of animals involved in any one experiment since the opening of the Chemical Defence Experimental Station, Porton, after the War is 92. The experiment was carried out in August, 1924, with the object of ascertaining the effect, if any, produced by exposure to very low concentrations of gas.

South African V.M.A.

The Horse-Breeding Industry.

At the Autumn Meeting of the South African Veterinary Medical Association, the following office-bearers were elected for the ensuing year: *President*, Mr. J. F. Carless; *Hon. Secretary* and *Treasurer*, Dr. H. H. Curson, of Onderstepoort Laboratory; *Council*, Mr. A. C. Kirkpatrick, Dr. P. J. du Toit, Mr. J. Chalmers, Dr. J. Quinlan, Mr. W. M. Power, Dr. E. M. Robinson, Mr. W. H. Chase, Dr. P. R. Viljoen, and Mr. J. L. Dickson.

A committee previously appointed to consider the question of horse breeding presented a report, in which it enumerated six causes of the decline in horse breeding, as follows: The lack of suitable markets; the use of mechanical transport; the lack of good sires; horse sickness; the exorbitant taxation of horse-racing, and indiscriminate breeding methods.

The committee recommended that attempts be made to find markets in other countries, particularly India, where it was considered a good market could be established for military re-mounts, polo ponies and racehorses. The report considered there would always be a market in South Africa for horses for military purposes, for although mechanical transport had hit the industry, the general adoption of mechanical transport was not practical in war time. The natural difficulties encountered in this country would always demand horse transport to a large extent.

In order to provide facilities for good breeding the committee suggested either that the Government should assist by selling or leasing sires, by placing sires at Government agricultural schools or other centres where farmers could send their mares, or by subsidising approved sires owned by breeders or agricultural societies.

Research on horse sickness was being continued at Onderstepoort, it was stated, with a view to finding a suitable vaccine. Progress was slow, but there was every hope of ultimate success.

"We strongly recommend," stated the committee, "that the Government use its influence with the provincial authorities and endeavour to obtain a reduction in the taxation at present levied on horse racing. If taxation on horse racing must be continued as a means of raising revenue, then it appears desirable and just that a portion of such revenue be returned to the horse-breeding industry, as is done in other countries where the tote operates. Such portion of the tote tax can be utilised for the purchase or subsidisation of suitable sires.

"It is suggested that a horse-breeding fund be established and a definite percentage of the totalisator tax be put aside to form the nucleus of such a fund. This fund could be further augmented by the lease or re-sale of sires.

"The committee also urged that farmers be taught the principles of correct breeding, mating and selection."

The President, in his address, referred to the Veterinary Bill recently defeated in Parliament. It was intended, he said, to withdraw that clause in the Bill which prohibited farmers from performing simple operations and then again to present the Bill to Parliament. The object of this Bill was to register veterinary surgeons in the Union, so that livestock owners could be assured of getting trained men to attend to their animals.—*Rand Daily Mail.*

Wool is Great Britain's oldest export. We have been exporting wool for over 1,700 years, and British wool was famous in Rome, being described by a Bishop of Alexandria in the third century as "so fine as to be comparable with a spider's web."—*Scotsman.*

Notes and News.

The Editor will be glad to receive items of professional interest for inclusion in these columns.

Diary of Events.

May 11.—Meeting of the Editorial Committee, N.V.M.A., at 2 Verulam Buildings, Gray's Inn, W.C.1, 4.30 p.m.

May 14th.—Meeting of the Midland Counties Division, N.V.M.A., at Kidderminster.

May 21st.—R.C.V.S. Voting Papers and Annual Report issued.

May 28th.—Last day for return of Voting Papers R.C.V.S. Council.

June 4th.—**R.C.V.S. Annual General Meeting.** Victoria Veterinary Benevolent Fund, Annual Meeting.

June 15th-20th.—D.V.S.M. Examinations.

July 2nd.—**R.C.V.S. Annual Dinner.**

Aug. 22nd-28th.—N.V.M.A. Congress at Norwich.

Norwich Congress.

The Railway Companies of Great Britain have agreed to allow members of the Association to travel to the Congress at the reduced rate of the ordinary single fare and a third for the double journey, **providing at least 100 members and their friends travel by rail.**

In order that this concession may be gained, members who wish to take advantage of this facility are requested to communicate with the General Secretary, N.V.M.A., 2, Verulam Buildings, Gray's Inn, W.C.1, as soon as possible, stating the number of tickets they will require. Should it be found that the requisite guarantee as to numbers can be given, vouchers will be forwarded immediately.

The reduced rate will apply from all stations in Great Britain and from Irish ports by railway-owned steamers, and by the boats of the Belfast Steamship, British and Irish Steam Packet and the City of Cork Steam Packet Companies and of Messrs. Burns and Laird Lines, Ltd.

Telephone Numbers of Members, N.V.M.A.

It has been decided by Council, N.V.M.A., to insert telephone numbers in the List of Members of the Association, published yearly in the Congress Handbook. Members are accordingly requested to forward this information without delay, to the General Secretary, N.V.M.A., 2, Verulam Buildings, Gray's Inn, W.C.1.

"Pit Pony Cruelty Allegations—The Truth."

In the course of an article, under the above heading, published in the *Daily Express* of March 10th, the Chief Reporter of that paper stated:—

"This is the truth about the pit ponies.

Recent letters in the *Daily Express* and the Parliamentary Bill of Sir Robert Gower have brought into the forefront of public interest the whole question of the employment of horses and ponies in the coal mines of this country.

"The pit horse, without any question, is in far better physical condition and infinitely better cared for than the ordinary horse of a similar class on the surface.

"The animals were in tip-top condition. There was one mare that had been working in the pit thirty years—a record—and was still strong and fit.

" As for feeding, the horses in the pits I visited had a daily allowance of 16 lbs. of hay, 13 lbs. of corn and 2 lbs. of beans, a good deal larger allowance than most surface horses.

" Obviously the pit horse is the most supervised and registered of any horse after the British Army horse.

" Records have to be kept by law of his day's work and condition. A Government inspector may look in to see him at any time; so, too, may the colliery company's veterinary surgeon or the mine manager.

" Registers of sickness and accident are maintained. when a horse is sick or hurt badly, up he is brought to the surface for veterinary hospital treatment, surgery or medicine.

" Every important colliery company employs a full-time veterinary surgeon and a staff of trained farriers. There is absolutely no chance for a pit horse being badly or improperly treated or not looked after.

" The allegations of pit pony cruelty, ill-treatment, starvation, and over-work are, from my observations, entirely disproved."

R.A.V.C. Golfing Society, 1931 Meeting.

The Annual Meeting of the Society will be held at North Hants Golf Club, Fleet, on May 20th and 21st, 1931, commencing at 10 a.m.

Programme of Events.

1*st Day.—Morning* (*a*) Eighteen holes Singles (medal play). Scratch for R.A.V.C. Challenge Cup. (No sweepstake).

(*b*) Eighteen holes Singles (medal play) under handicap for R.A.V.C. Founder's Cup. (Sweepstake 2s. 6d. optional.)

These two events will be competed for simultaneously.

Afternoon.—Eighteen holes (medal play) foursome under handicap, for a prize value two guineas. (Sweepstake 2s. 6d. optional.)

2*nd Day.—Morning.* Eighteen holes Singles play under Handicap *v.* Bogey for a Cup presented by the Captain of the Society (Major G. T. T. Jackson). (Sweepstake 2s. 6d. optional.)

Afternoon.—Eighteen holes foursome play under Handicap *v.* Bogey for a prize value two guineas. (Sweepstake 2s. 6d. optional.)

The Annual General Meeting will be held in the Club House at the close of the first day's play.

Members are requested to notify the Hon. Secretary of the Society: c/o Station Veterinary Hospital, Aldershot, as early as possible :—

(*a*) Whether it is their intention to be present at the meeting, to enable the necessary arrangements *re* meals, etc., to be made.

(*b*) Their lowest club handicap.

(*c*) Whether they want caddies.

Army Veterinary Service.

London Gazette—War Office—Regular Army.

May 1st.—Captain P. C. W. Creagh resigns his commission (May 1st).

May 5th.—Lieut.-Colonel A. Leaning, D.S.O., retires on an Ind. Pension (May 5th).

Foot-and-Mouth Disease.

At a recent meeting of the Craven Tenant Farmers' Association at Skipton, it was announced that the Ministry of Agriculture was unable to reduce the size of restricted areas imposed during outbreaks of foot-and-mouth disease.

At the last meeeting of the Association, a resolution was passed asking for a reduction in the area, but a letter from Mr. E. Roy Bird, M.P. for Skipton Division, stated that the Ministry of Agriculture had found it impossible to hold out any hope of a relaxation of the present practice in connection with foot-and-mouth disease. The question of the policy and procedure (continued the letter) was fully discussed and investigated by the committees of 1922 and 1925, but they were unable to recommend any reduction in the size of the district to which restrictions applied in the first instance.

. . . . . .

Twelve thousand, nine hundred pigs, over 6,000 sheep, 1,825 calves, and 2,261 cattle which had arrived at Berlin cattle market, had to be slaughtered owing to an outbreak of foot-and-mouth disease. Animals of all kinds have been debarred from entering the municipal market, and the premises must be disinfected.

Dorothy Temple Cross Research Fellowships in Tuberculosis.

1931-1932.

The Dorothy Temple Cross Research Fellowships in Tuberculosis for the academic year 1931-1932 will shortly be awarded by the Medical Research Council, and applications should be lodged with the Council not later than June 6th, 1931.

The object of these Fellowships, as defined in the Trust Deed, is to give special opportunities for study and research to persons " intending to devote themselves to the advancement by teaching or research of curative or preventive treatment of tuberculosis in all or any of its forms." Candidates must be British subjects and must possess suitable medical, veterinary or scientific qualifications. They must also be able to produce satisfactory evidence of their ability to make good use of the opportunities offered by the Fellowships.

The Fellowships will preferably be awarded to candidates who wish to conduct their studies or enquiries outside the borders of Great Britain. They will, as a rule, be awarded for one year, but in special cases may be renewed. The value of the Fellowships awarded will depend in each case upon the standing and qualifications of the candidate, but will not be less than £300 per annum, with travelling expenses in addition.

It may also be possible to award a Senior Fellowship of considerably greater value to a specially well qualified candidate wishing to undertake an intensive study of some particular problem of tuberculosis at a chosen centre of work in another country.

Further particulars and forms of application are obtainable from the Secretary, Medical Research Council, 38, Old Queen Street, Westminster, S.W.1.

Correspondence.

Letters to the Editor should reach the Office not later than by the first post on Tuesday morning for insertion in following Saturday's issue.

All correspondence must bear the name and address of the contributor for publication

The Editor does not hold himself responsible for the opinions of his correspondents.

Intermittent Colic and its Cause.

To the Editor of The Veterinary Record.

Sir,—I was extremely interested in the article under the above heading in the clinical reports of the *Veterinary Record* of April 18th, written by Mr. W. J. Rice; the *post-mortem* findings seem to suggest very definitely that aneurism of of the mesenteric artery has been the cause of the trouble in the first instance. It is a very frequent experience to find horses in good health for many years, then some climax occurs (such as a fall, a violent struggle, influenza or perhaps no known accident) and then colic or some indefinite debilitating condition supervenes. Subsequently a great variety of conditions may occur—acute colic with death in 24-36 hours, intermittent colics, diarrhœa with occasional pains, debility extending over months, with occasional lameness in different limbs and inability to work on account of respiratory distress immediately on being put to work.

Although the aneurism is quiet for years in most cases, once disturbance takes place embolism occurs and the

symptoms vary according as to whether the embolism is in a terminal artery or in one where anastomosis allows of an alternate blood supply. It is feasible to suggest that the fall into the ditch in August was the event where the aneurism was disturbed.

After making *post-mortem* examinations systematically for a few years I am very definitely coming to the conclusion that, but for ruptured stomach and calculus and possibly twist of the small bowel, the cause of quite 90 per cent. of our fatal colic cases is verminous aneurism. I am also satisfied that many of our mild cases of colic which recover are due to the same cause. A host of other conditions can ultimately be attributed to aneurism when examined *post-mortem*, although I fear sufficient observation has not been made on arteries, other than the mesenteric, to enable one to speak dogmatically—*e.g.*, some of the obscure nervous conditions, and osteoporosis and possibly mucous bursitis.

As a shrewd guess, I should say that aneurism in the mesenteric arteries in this district is as common in horses as tuberculosis is in cattle, so that a wide experience of those cases which ultimately show changes attributable to them is not unexpected.

One is trying to perfect a system of diagnosis during life of those cases of debility which one is almost certain are due to aneurismal effects, but of which there is no tangible symptom or indication beyond the history of heavy losses of other animals of the same age during adolescence.

Yours faithfully,
F. C. Scott.

Northgate,
Pontefract,
May 1st, 1931.

The Use of Manganese in Veterinary Practice.

To the Editor of The Veterinary Record.

Sir,—Anent the interesting contribution upon the above by Mr. A. Spicer, F.R.C.V.S. (*Veterinary Record*, vol. xi, No. 18) I feel that the following extracts may be of some interest to colleagues. To my mind they suggest that the basis of this form of therapy is biochemical; it was, as Mr. Spicer states, in the first instance introduced empirically.

L. E. Walburn (Acta Pathologica et Microbiologica Scandinavia," fasc. 4, March 17th, 1925), reporting upon the therapy of the metal salts, found that the injection of small quantities of manganese increased the capacity of the organism to neutralise the endotoxins with which he experimented, *viz.*, the tubercle bacillus, pneumococcus, streptococcus and the staphylococcus; and, that by some means injections of manganese raised the power of the body to form antibodies.

Walburn also observed a feature which is of considerable clinical importance—that when manganese was given in larger doses the growth of bacteria was stimulated and the organism showed decidedly retrogressive effects. The cause of this undesirable effect, which I believe to be more acceptably interpreted as the organism being exhausted by over stimulation of particular biochemical factors, thus rendered defenceless in respect of that part which such factors play against bacterial growth, appears to be answered in the work of Findlay, *British Journal of Experimental Pathology*, vol. 92, 1924, and Hurst, *Journal of Pathology and Bacteriology*, vol. 31, 1928. Employing rabbits, guinea-pigs and rats, these workers found that *fair* doses of manganese gave rise to hepatic cirrhosis with necrosis of the periphery of the lobules: whereas, control experiments with other chemical agents which give rise to similar hepatic changes, e.g., $CHCl_3$, showed comparatively little cirrhosis with central degeneration. A few years ago, the vogue of the combined thyroid-manganese treatment lead to considerable work being done upon manganese. Opinion as to the *modus operandi* remains undecided, I fear.

It is noteworthy that, while in the physiological body manganese is found to be widely distributed in traces, yet, from Findlay and Hurst's work it would appear on injection to show a predilection for the periphery of the lobules of the liver.

Can it be that by injecting a suitable dose of what appears to be the most suitable metallic agent we are releasing, possibly by mild irritation, relatively larger quantities of lipoids—particularly of the unsaturated group? On the other hand, excessive dosage causes an action similar to that of the heavier metals—marked degenerative changes.

Be that as it may: may one, from experience, say "gang warily wi' the dose."

Yours faithfully,
George Dykes, M.R.C.V.S.

202, Wedderlea Drive,
Glasgow, S.W.2.

Avertin Narcosis.

To the Editor of The Veterinary Record.

Sir,—The accurate measurement of small doses of fluid Avertin (often under 1 c.c.) may present difficulties. Up to the present we have been using a measuring cylinder graduated in c.cs. and a tenth part of a c.c.

Messrs. Bayer have recently sent us a pipette graduated to the second decimal part of a c.c. By its use accurate measurement of the dose is easy and waste is prevented.

I understand that Messrs. Baird and Tatlock, 14, Cross Street, E.C., market a similar pipette.

Yours faithfully,
J. G. Wright.

Royal Veterinary College,
Camden Town, N.W.1.
May 4th, 1931.

Transvaal Civil Veterinary Department.

To the Editor of The Veterinary Record.

Sir,—In reply to Mr. Curson's letter, this subject is being confused by giving it another heading.

The fact I wish to clear is, who were the first official Government Veterinary Surgeons in the Transvaal dealing with scheduled contagious diseases after the South African War—Repatriation, or those mentioned as appointed at the end of 1902? It is maintained, because the veterinary surgeons of the Repatriation Department were appointed to a district in which a chain of depôts was established, that *ipso facto* they were the first District Veterinary Surgeons.

I beg to differ from this deduction; as I stated in my previous letter the Veterinary Surgeons of the Repatriation Department were appointed to look after the interests of that Department and had nothing to do with outbreaks of disease among animals of people who had settled on a farm.

Even where cases of scheduled disease occurred among Repatriation animals they were scheduled in the Government Gazette, and were under the supervision of the Government Veterinary Surgeon for that District. The S.A.C. gave considerable help in the early days, affording facilities for the training of some of their members as Stock Inspectors and acting under the Government veterinary surgeon in dealing with scab among sheep and goats.

As the Repatriation depôts closed down the veterinary surgeons of the Department were given notice of termination of their services and several of them obtained appointments with the Transvaal Civil Veterinary Department.

Yours faithfully,
J. Pollard.

Halifax.
May 4th, 1931.

The Editor acknowledges the receipt of the following:—
Communications from Major T. Dalling (Beckenham), Professor S. H. Gaiger (Liverpool), Mr. G. B. Purvis (Seremban, F.M.S.).